Grid to the LHC start

(still)

V.A. Ilyin

Russia Tier2 facilities in World-wide LHC Computing Grid

RuTier2 functional model in the WLCG:

- **RuTier2 - federation of several (now 6) centers of the Tier2 functionality:**

  MC generation, analysis of real data, users data support

  and other (now 5) of Tier3 functionalyty:

  local user support

- **each RuTier2 site operates for <u>all four</u> experiments - ALICE, ATLAS, CMS and LHCb, thus**

  sharing CPU and partitioning storage resources between Experiments at each Tier2 site

RuTier2 in the World-Wide Grid

RuTier2 Computing Facilities are operated by

Russian Data-Intensive Grid (RDIG)

RDIG is national segment in the European grid infrastructure EGEE

http://www.egee-rdig.ru

*being starting structure toward the **NGI** (National Grid Infrastructure) collaborating with **EGI** – European Grid Initiative (Infrastructure)*

RDIG provides basic grid services for RuTier2 sites:

support VOs, RB/WMS, information system, ROC	*- SINP MSU*
CA and security	*- RRC KI*
monitoring and accounting	*- JINR*
user support	*- ITEP*

EGEE-RDIG - Mozilla Firefox

Файл Правка Вид Журнал Закладки Инструменты Справка

Свернуть в окно

http://www.egee-rdig.ru/

Самые популярные INDICO EGEE EGEE PMB RDIG RDIG SINP xwho WebMail

EGEE-RDIG | RDIG Monitoring | roc:rc [RDIG SINP-MSU]

LogIn

EGEE Enabling Grids for E-sciencE — EGEE-III — RDIG Russian Data Intensive Grid

Russian Version | Home | Today : 28/11/2008

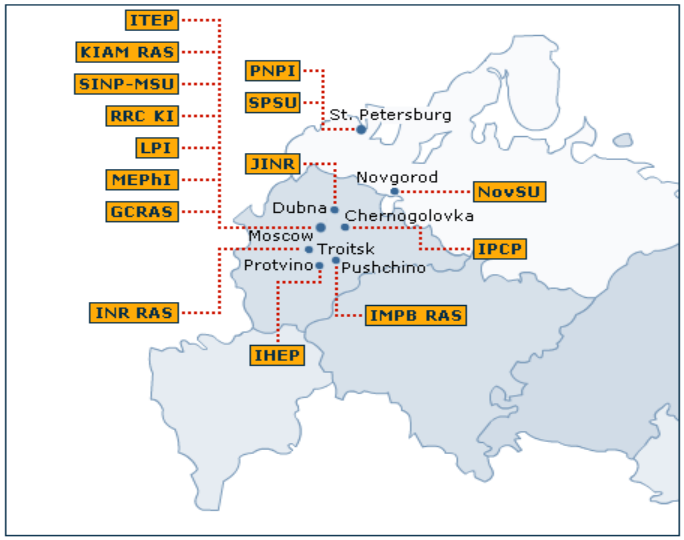
rdig
- News
- Meetings/Seminars
- Agenda
- Documents
- How to get involved as...
- User training
- Contacts

services
- RDIG Monitoring and accounting
- Certification Authority
- ROC
- Resource Centers
- Mail Lists
- User Support

EGEE-III activities
- Middleware Re-Engineering (JRA1)
- GRID Operation, Support & Management (SA1)
- Networking Support (SA2)
- Integration, Testing & Certification (SA3)
- Activity Management (NA1)
- Dissemination, Outreach & Communication (NA2)
- Training & Induction (NA3)
- Application Identification & Support (NA4)
- Policy & International Cooperation (NA5)
- Business Forum EGEE-III

general info
- Russian GRID-Club
- Conferences
- External Links
- Glossary

EGEE & RDIG



The Russian consortium RDIG (Russian Data Intensive Grid, www.egee-rdig.ru) was set up in September 2003 to create Grid infrastructure for intensive scientific data operations. Such infrastructure is necessary for the participation of Russian scientists in experiments in high energy physics, in chemical physics and biology, in earth sciences and other scientific applications. By the end of 2006 year the following institutes are involved into the RDIG activities: Kurchatov Institute (Moscow, www.kiae.ru), the Institute of High Energy Physics (Protvino, www.ihep.su), Institute of Mathematical Problems in Biology RAS (Pushchino, www.impb.ru), Institute of Theoretical and Experimental Physics (Moscow, www.itep.ru), Joint Institute for Nuclear Research (Dubna, www.jinr.ru), Keldysh Institute of Applied Mathematics RAS (Moscow, www.keldysh.ru), Skobeltsyn Institute of Nuclear Physics at MSU (Moscow, www.sinp.msu.ru), St-Petersburg Institute of Nuclear Physics RAS (Gatchina, www.pnpi.spb.ru), Institute for Nuclear Research RAS (Troitsk, www.inr.ru), Lebedev Physical Institute RAS (Moscow, www.lebedev.ru), St-Petersburg State University (www.spbu.ru), Moscow Engineering Physics Institute (State University) (www.mephi.ru), Geophysical Center RAS (Moscow, www.wdcb.ru/GCRAS/welcome.html), Novgorod State University (Velikii Novgorod, www.novsu.ru) and Institute of problems of Chemical Physics RAS (Chernogolovka, www.icp.ac.ru). RDIG participates in the EGEE structure as a regional federation providing Russia's full-scale participation in this global grid project.

Enabling Grids for E-sciencE (EGEE) is the largest multi-disciplinary grid infrastructure in the world, which brings together more than 120 organisations to produce a reliable and scalable computing resource available to the European and global research community. At present, it consists of 250 sites in 48 countries and more than 68,000 CPUs available to some 8,000 users 24 hours a day, 7 days a week.

EGEE-III, co-funded by the European Commission, aims to expand and optimise the Grid infrastructure, which currently processes more than 150, 000 jobs per day from scientific domains ranging from biomedicine to fusion science. The EGEE Grid infrastructure is ideal for any scientific research, especially for projects where the time and resources needed for running the applications are considered impractical when using traditional IT infrastructures.

Objectives

The EGEE project brings together experts from more than 50 countries with the common aim of building on recent advances in Grid technology and developing a service Grid infrastructure which is available to scientists 24 hours-a-day.

The project provides researchers in academia and business with access to a production level Grid infrastructure, independent of their geographic location. The EGEE project also focuses on attracting a wide range of new users to the Grid. The project's main focus is:

- To expand and optimise Europe's largest production Grid infrastructure, namely EGEE, by continuous operation of the infrastructure, support for more user communities, and addition of further computational and data resources.
- To prepare the migration of the existing production European Grid from a project-based model to a sustainable federated infrastructure based on National Grid Initiatives for multi-disciplinary use.

Results

Funded by the European Commission, the Enabling Grids for E-sciencE (EGEE) project is the flagship Grid infrastructure project of the EU. The third two-year phase of the project started on 1 May 2008 and includes:

- A Grid infrastructure spanning about 250 sites across 50 countries
- An infrastructure of more than 68,000 CPU available to users 24 hours a day, 7 days a week,
- More than 20 Petabytes (20 million Gigabytes) of storage.
- Sustained & regular workloads of 30K jobs/day, reaching up to 150K jobs/day
- Massive data transfers > 1.5 GB/s
- User Support including:
  - A single access point for support, a portal with well structured information and updated documentation; knowledgeable experts; correct, complete and responsive support; tools to help resolve problems.
- Security & Policy, including:
  - Authentication (Use of GSI, X.509 certificates generally issued by national

пуск | Total Commander... | EGEE-RDIG - Mozil... | Входящие для ilyi... | jun08-5x5_ilyin.pp... | nov08-5x5-ilyin.pp... | EN | 0:08

International Connectivity (*bandwidth view)*

1) GEANT2

PoP (connected to Moscow G-NAP) operates in JSCC RAS (Moscow) since December 2006, ***now bandwidth 2.5 Gbps.***

10 Gbps upon the real request by RDIG and LCG

real use by RuTier2 sites during this year

– stable file transfer at the level > 20 Mbyte/s (max 70 Mbyte/s)

2) RBNet-GLORIAD ***now bandwidth 1 Gbps***

RuTier2 sites have started real use in September 2009

CMS FNAL T1 –> Moscow T2s (RRC KI, SINP MSU) file transfer

we see 20 Mbyte/s++, but still unstable (probably problems with networking cross Europe – under investigation)

3) RUNNet link

Moscow (G-NAP) – Stockholm (NORDUNet-GEANT2) – Amsterdam (SURFNet-CERN-GEANT2) - USA

today total bandwidth 10 Gbps

RuTier2 sites have started real use in September 2009

CMS Taiwan T1 –> Moscow T2s (RRC KI, SINP MSU) file transfer

we see 20 Mbyte/s++, but still unstable (probably problems with networking cross Europe – under investigation)

REGIONAL CONNECTIVITY
(*bandwidth view)*

Moscow 1 Gbps (RRC KI, SINP MSU, ITEP, MEPhI, …)

10 Gbps: RRC KI Q1 2009

SINP MSU mid 2009

IHEP (Protvino) 100 Mbps

Q1 2009 1 Gbps ++, then go to 10 Gbps

JINR (Dubna) 1 Gbps,

10 Gbps - Q1 2009

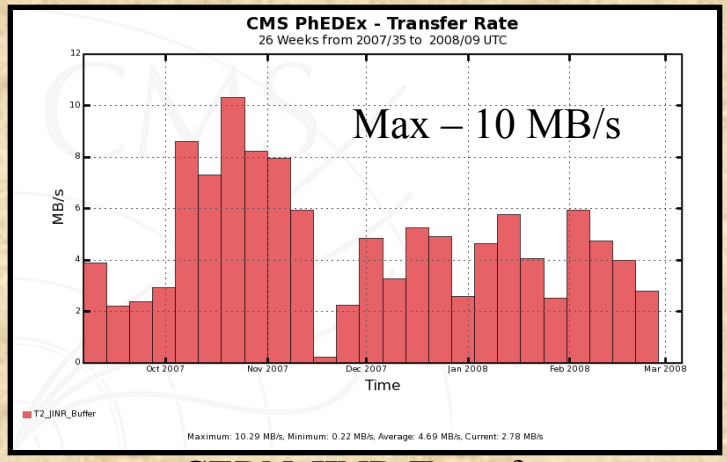
BINP (Novosibirsk) 45-100 Mbps

INR RAS (Troitsk) 1+1 Gbps o/f to Moscow

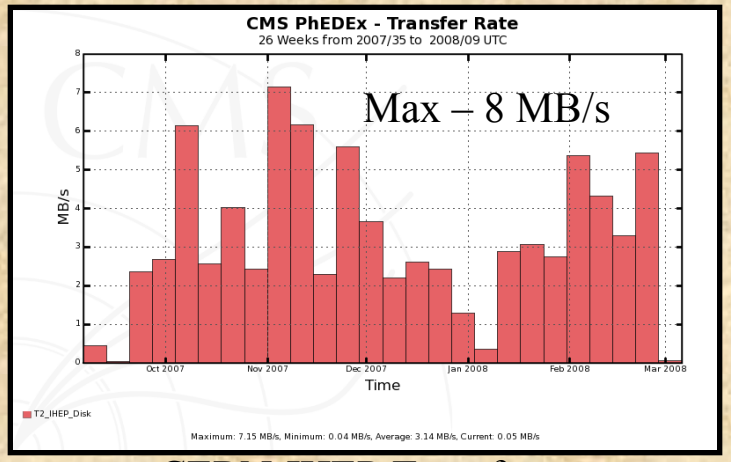
PNPI (Gatchina) 1 Gbps link to St-Petersburg, *real use 100 Mbps*

SPbSU (St-Petersburg) 1 Gbps

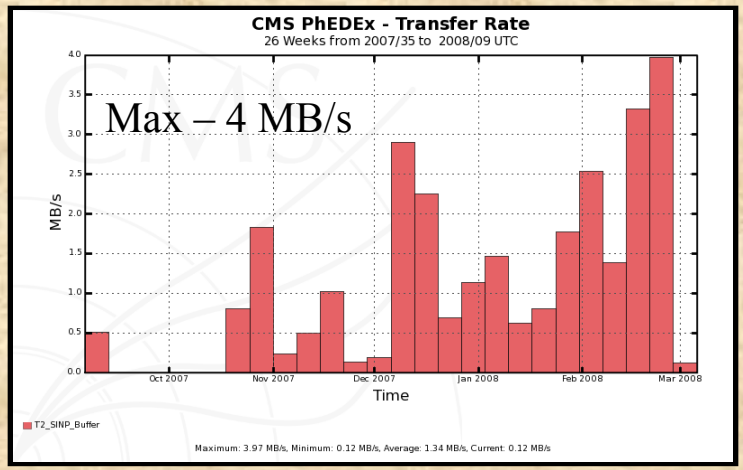
CERN –> RDMS sites Phedex Transfer Rates (October 2007 – March 2008)



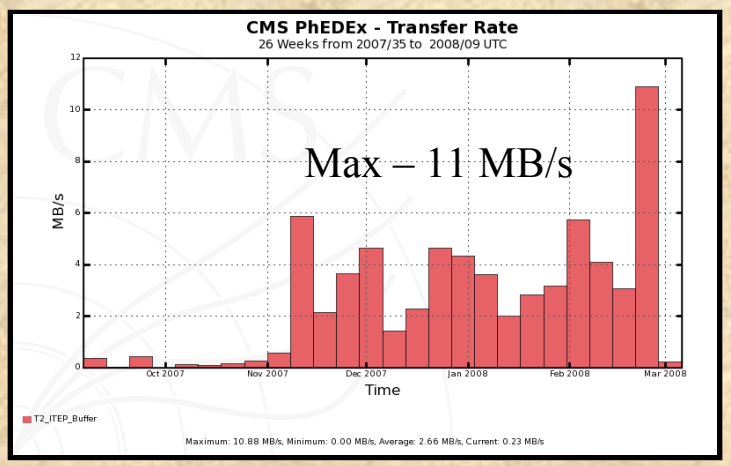
CERN-JINR Transfers



CERN-IHEP Transfers



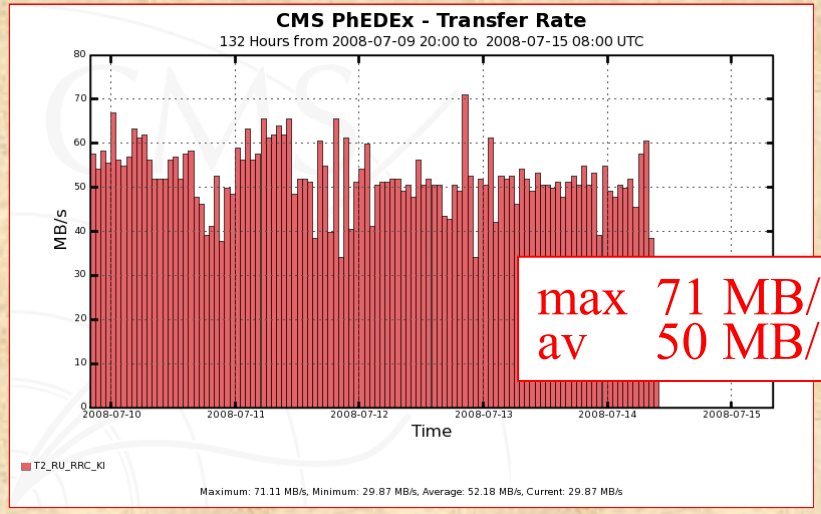
CERN-SINP Transfers



CERN-ITEP Transfers

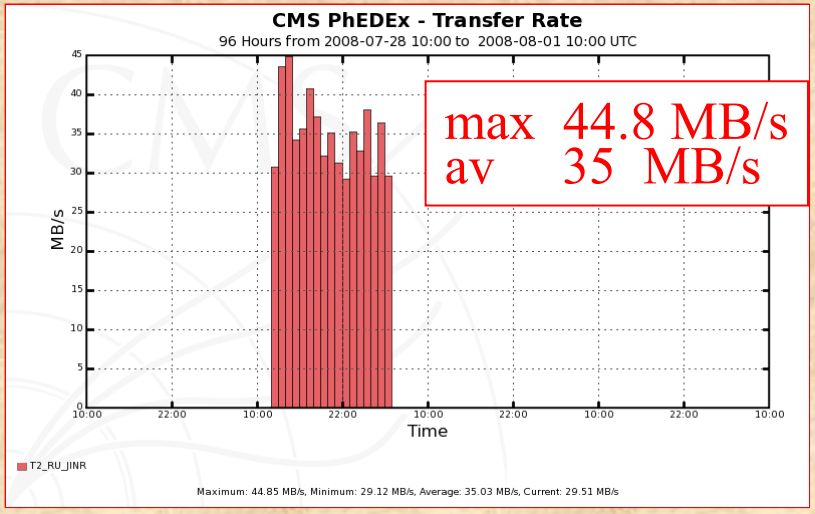
Transfer Rates during Phedex Load Tests
May-Sept 2008

RRC-KI



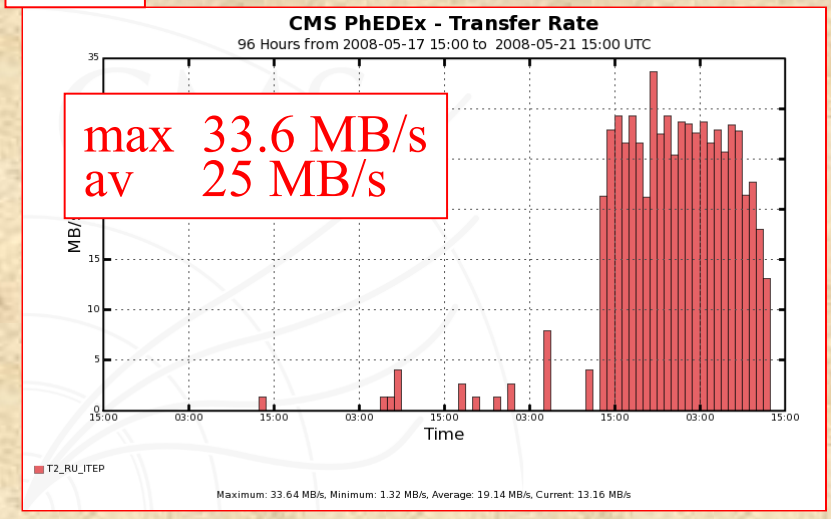
max 71 MB/s
av 50 MB/s

JINR



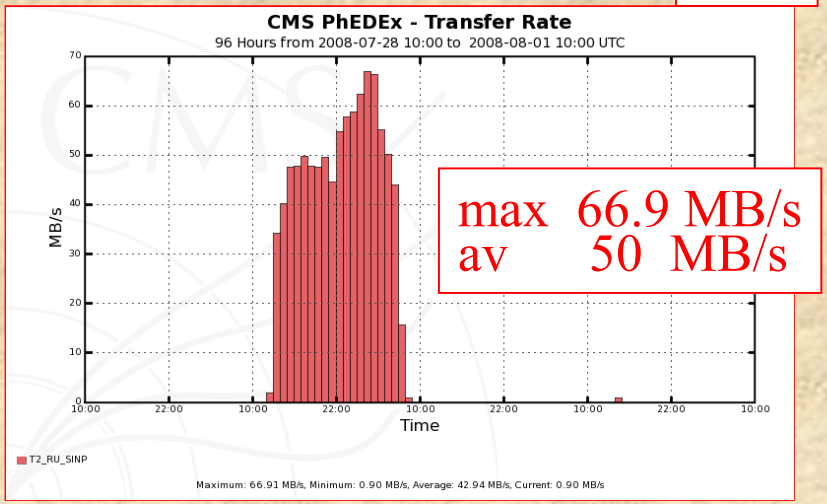
max 44.8 MB/s
av 35 MB/s

ITEP



max 33.6 MB/s
av 25 MB/s

SINP



max 66.9 MB/s
av 50 MB/s

RuTier2 resources

End of 2008, installed and available for WLCG:

- *3800++ KSI2K CPU*
- *600+ TByte Disk*
- *no Tape*

Budget 2008 from FASI was 4 MCHF, additional budget from JINR and local sites (MEPhI, INR RAS, LPI ...) ~1 MCHF, altogether resulted in

resources available for WLCG at the beginning of 2009:

- *~ 4000-4500++ KSI2K CPU (pledged 3800 KSI2K)*
- *1700+ TByte Disk (pledged)*
- *no Tape*

Now the request for 2009 budget is preparing based on requirements by Experiments

– to be fixed in March 2009.

WLCG T2 resources accounting
CPU pledged inc. efficiency in September 2008

Sites	2008 CPU) Pledge (KSI2K	pledge inc. efficiency (KSI2K-Hrs)	ALICE	ATLAS	CMS	LHCb	Total	used as % pledged
JINR			**240,080**	**160,818**	**143,637**	**5,686**	**550,221**	
RRC-KI			**170,694**	**78,667**	**54,685**	**1,968**	**306,014**	
SINP-MSU			**23,873**	**35,282**	**21,537**	**5,083**	**85,775**	
ITEP			**53,585**	**5,955**	**19,795**	**16,814**	**96,149**	
PNPI			**43,364**	**69,359**	**7,729**	**6,140**	**126,592**	
IHEP			**17,794**	**32,288**	**16,213**	**2,340**	**68,635**	
INR RAS			8		142	426	576	
MEPhI				334			334	
SpbSU			371				371	
FIAN (LPI)				209			209	
RU-RDIG	**3,000**	**1,296,000**	**549,769**	**382,912**	**263,738**	**38,457**	**1,234,876**	**95%**

November **79%**

Start of new installations

Oct 2008 C-RRB: Capacities and procurements

- The WLCG MB has agreed that with the information currently available to us and the present understanding of the accelerator schedule for 2009:
  - The amount of data gathered in 2009 is likely to be at least at the level originally planned, with pressure to run for as long a period as possible this may be close to or exceed the amount originally anticipated in

    2008 + 2009 together
  - The original planning meant that the capacity to be installed in 2009 was still **close to x2 with respect to 2008** as part of the initial ramp up of WLCG capacity
  - Many procurement and acceptance problems arose in 2008 which meant that **the 2008 capacities were very late in being installed**; there is a grave concern that such problems will continue with the 2009 procurements
  - The 2009 procurement processes should have been well advanced by the time of the LHC problem in September
- The WLCG MB thus does not regard the present situation as a reason to delay the 2009 procurements, and we urge the sites and funding agencies to proceed as planned. It is essential that adequate resources are available to support the first years of LHC data taking.

To meet the 2009 resource requirements:

Resources available for WLCG at the beginning of 2009:

- *~ 4000-4500++ KSI2K CPU (2009 pledged - 3800 KSI2K)*
- *1700+ TByte Disk (2009 pledged)*

However we have no still clear understanding of the experiment resource requests for 2009:

- is it true that 2009 data = former «2008+2009» plans?
- MC production should be continued – at the level of 2008?

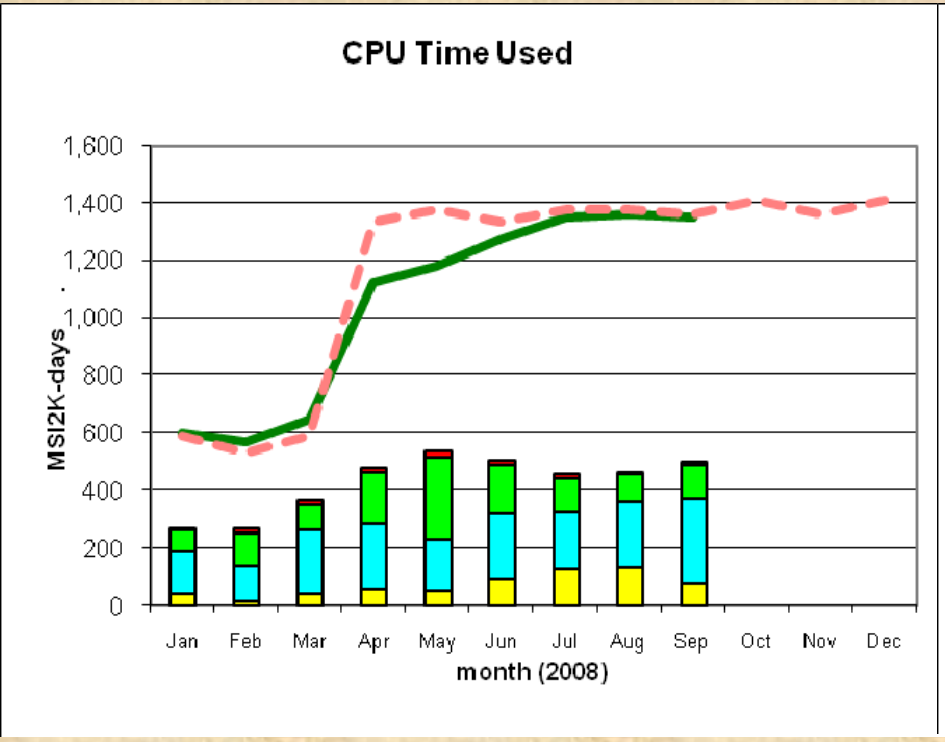
Thus, we should understand more deeply why

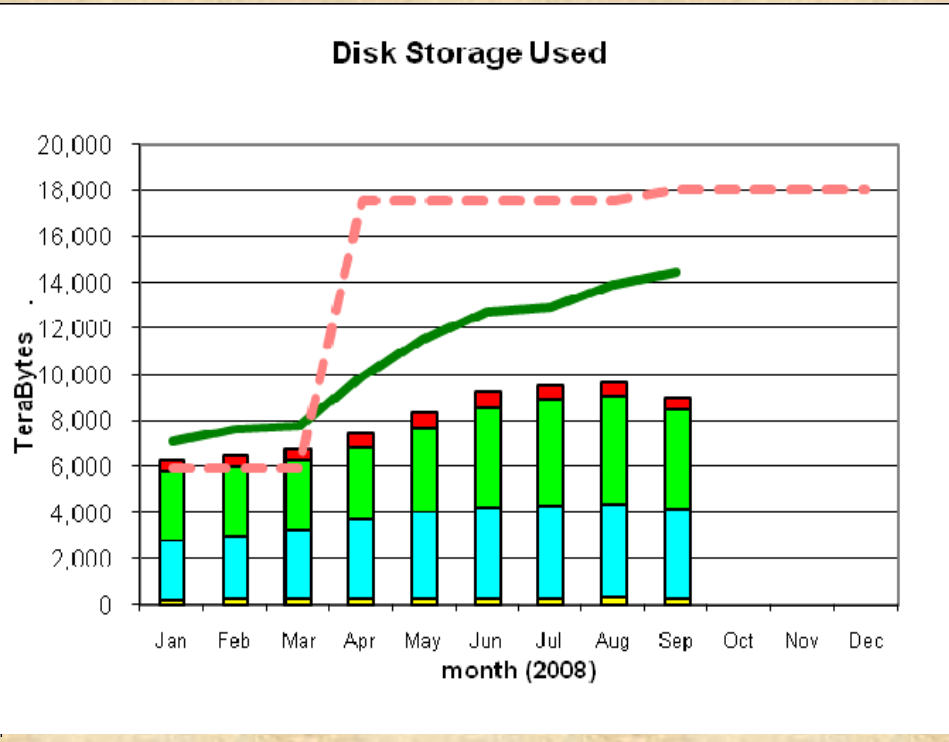
the capacity to be installed in 2009 still close to x2 with respect to 2008?

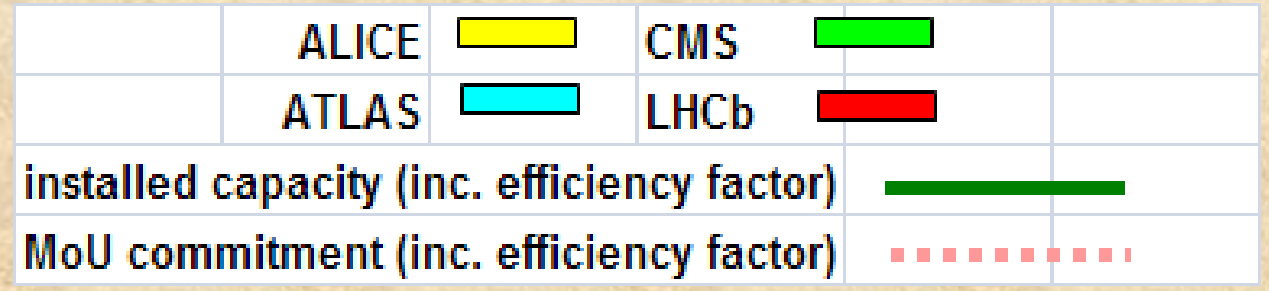
Институт	Наличие ресурсов к 01.11.08		2008 закупки по контрактам БАК		2008 закупки по контрактам БАК резерв		Закупки из собств. средств с ноября 2008 по март 2009		Ресурсы к марту 2009	
РНЦ КИ	1000	218	1000,0	450,0					2000,0	668,0
ОИЯИ	1500	83	345,0	297,9	103,5		103,5	55,9	2052,0	436,8
ИТЭФ	232	52	276,0	102,4					503,0	154,4
ИФВЭ	200	40	241,5	102,4					441,5	142,4
ПИЯФ	250	50	138,0	71,4					388,0	121,4
НИИЯФ	315	61	103,5	102,4					418,5	163,4
МИФИ	357	39	34,5	20,5			26,0	5,0	417,5	62,5
ИЯИ РАН	154	3	103,5	41,0				41,0	257,5	85,0
СПБГУ	40	5	69,0	18,2					109,0	23,2
ФИАН	56	16	34,5	20,5				14,0	90,5	50,5
ИЯФ СО РАН (вне WLCG)	36	8	54,0	12,0					90,0	20,0
ИТОГО	4140	575	2399,5	1238,6	103,5	0,0	129,5	115,9	6767,5	1927,5

WLCG Computing Resources Review Board (C-RRB) – 11th Nov 2008

CERN-RRB-2008-104, Oct. 2008

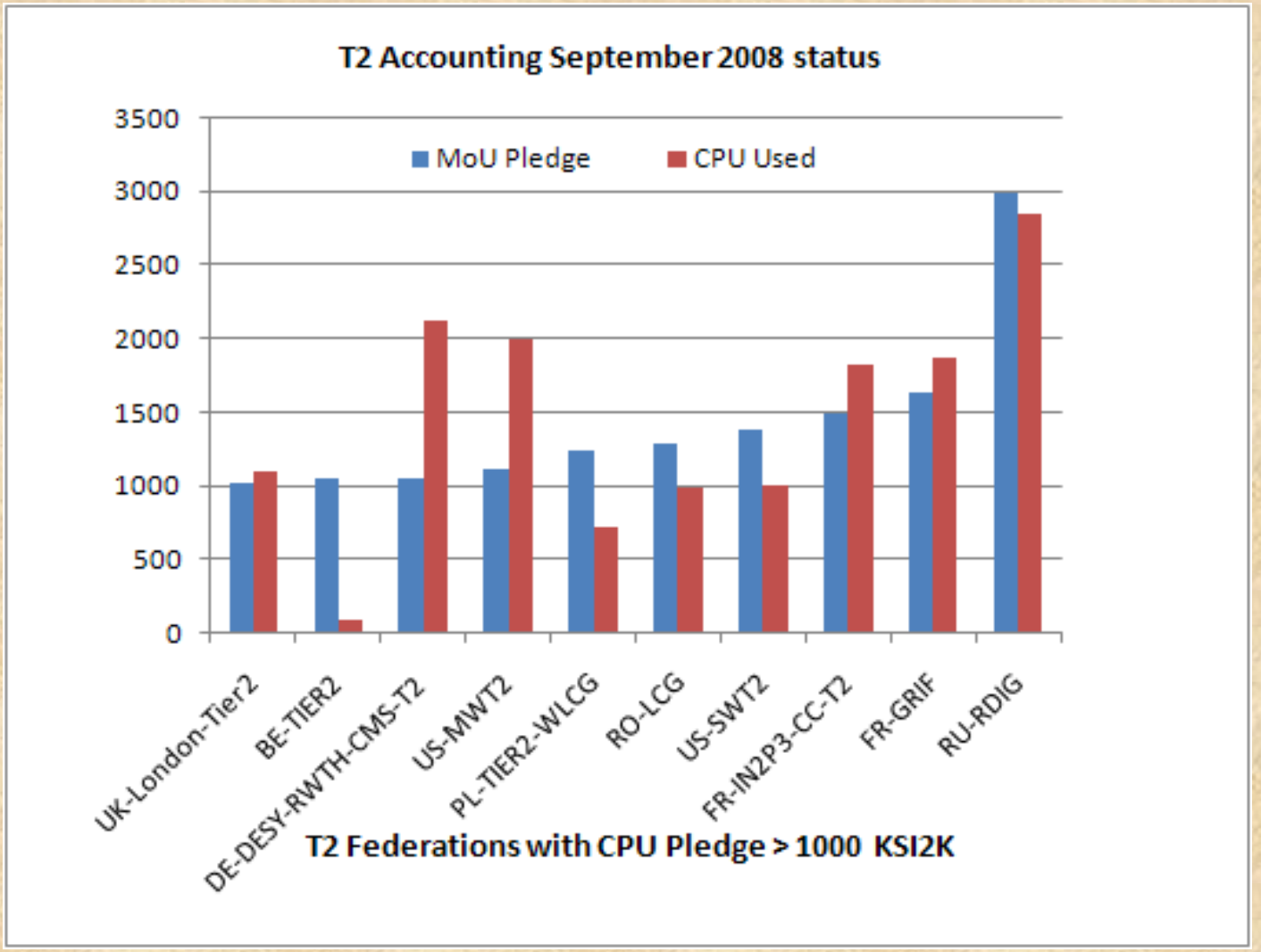






WLCG Computing Resources Review Board (C-RRB) – 11th Nov 2008

CERN-RRB-2008-104, Oct. 2008



Tier-2 Availability and Reliability Report

Federation Summary - Sorted by Name

August 2008

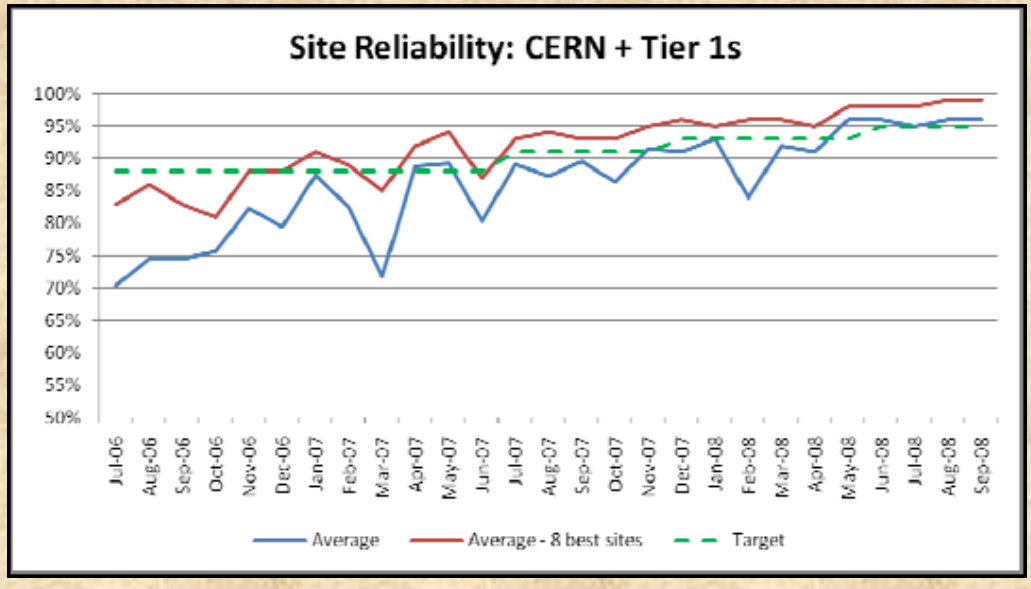
Critical SAM Tests - http://sam-docs.web.cern.ch/sam-docs/docs/htmldocs/MANUserManual/node22.html

Availability = % of successful tests
Reliability = Availability / Scheduled Availability
Reliability and Availability for federation - average of all sites in the federation

Colour coding : N/A | < 30% | < 60% | < 90% | >= 90%

Federation	Reli-ability	Avail-ability
AT-HEPHY-VIENNA-UIBK	99 %	99 %
AU-ATLAS	64 %	59 %
BE-TIER2	90 %	87 %
CA-EAST-T2	69 %	67 %
CA-WEST-T2	94 %	89 %
CH-CHIPP-CSCS	99 %	97 %
CN-IHEP	99 %	98 %
CZ-Prague-T2	94 %	94 %
DE-DESY-ATLAS-T2	99 %	98 %
DE-DESY-RWTH-CMS-T2	98 %	98 %
DE-FREIBURGWUPPERTAL	96 %	96 %
DE-GSI	0 %	0 %
DE-MCAT	92 %	91 %
EE-NICPB	84 %	84 %

Federation	Reli-ability	Avail-ability
JP-Tokyo-ATLAS-T2	98 %	96 %
KR-KISTI-T2	87 %	86 %
NO-NORDGRID-T2	N/A	0 %
PK-CMS-T2	79 %	78 %
PL-TIER2-WLCG	90 %	64 %
PT-LIP-LCG-Tier2	94 %	93 %
RO-LCG	96 %	95 %
RU-RDIG	91 %	91 %
SE-SNIC-T2	N/A	N/A
SI-SiGNET	87 %	84 %
T2_US_Caltech	88 %	90 %
T2_US_Florida	92 %	92 %
T2_US_MIT	98 %	98 %
T2_US_Nebraska	94 %	94 %


Site Reliability: CERN + Tier 1s
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
Jul-06
Aug-06
Sep-06
Oct-06
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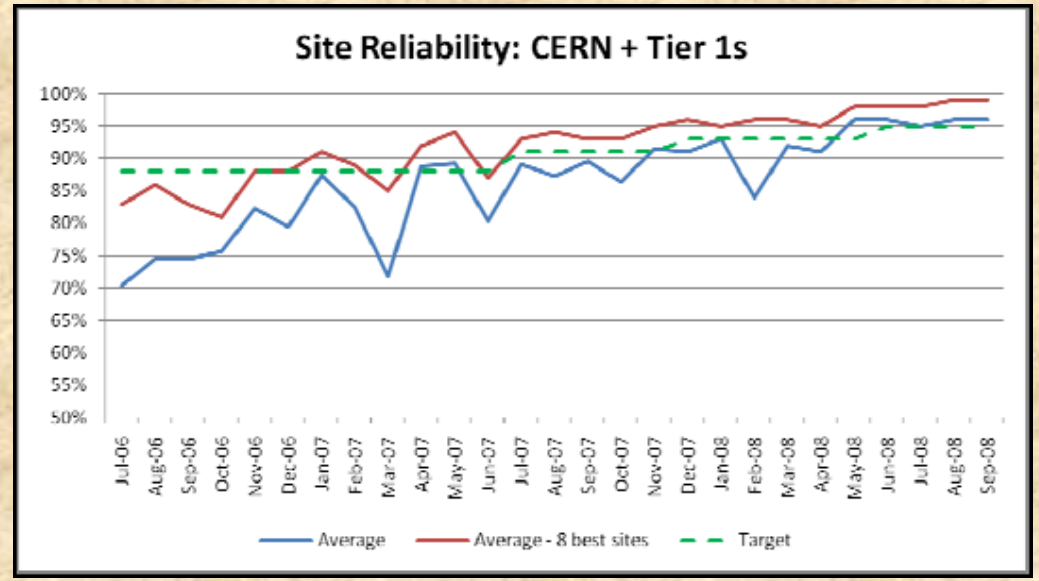
Jun-08
Jul-08
Aug-08
Sep-08
Average
Average - 8 best sites
Target


Site Reliability: CERN + Tier 1s
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
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Jan-08
Feb-08
Mar-08
Apr-08
May-08
Jun-08
Jul-08
Aug-08
Sep-08
Average
Average - 8 best sites
Target

ATLAS

Functional Tests monitoring page (generated on 2008-10-25 12:15:04 CERN)

BNL	AGLT2* (130/130)	MWT2* (130/130)	NET2* (130/10)	OU*	SLACXRD* (130/130)	SMU	SWT2* (130/10)	UCT3	UTD
CNAF	FRASCATI* (56/0)	MILANO* (56/56)	NAPOLI* (130/74)	ROMA1* (130/74)					
FZK	CSCS* (22/22)	CYF* (108/108)	DESY HH* (130/130)	DESY ZN* (22/22)	GOEGRID* (108/108)	HEPHY UIBK* (22/22)	LRZ* (22/22)	MPPMU* (108/108)	PRAGUE* (108/108)
LYON	BEIJING* (50/50)	CPPM* (12/12)	IN2P3 CC_PHYS TOP	LAL* (10/10)	LAPP* (12/12)	LPC* (35/35)	LPNHE* (50/50)	LPSC* (11/11)	NIPNE_02* (21/21)
NDGFT	IJST2	SIGNET* (108/108)							
PIC	IFAE* (6/6)	IFIC* (66/66)	LIP COIMBRA	LIP LISBON	LIP LISBON_DATADISK	LIP LISBON_MCDISK	PIC_PHYS TOP	UAM* (58/58)	
RAL	BHAM* (3/3)	BRUN* (13/13)	CAM* (24/24)	DUR* (13/13)	ECDF* (15/15)	GLASGOW* (48/48)	LANCS* (4/4)	LIV* (12/12)	MANC
SARA	CSTCDIE* (44/44)	IHEP* (90/90)	ITEP* (23/23)	JINR* (11/11)	PNPI* (78/78)	RRC KI* (41/41)	SINP* (23/23)	TR 10 LAKBIM* (35/35)	

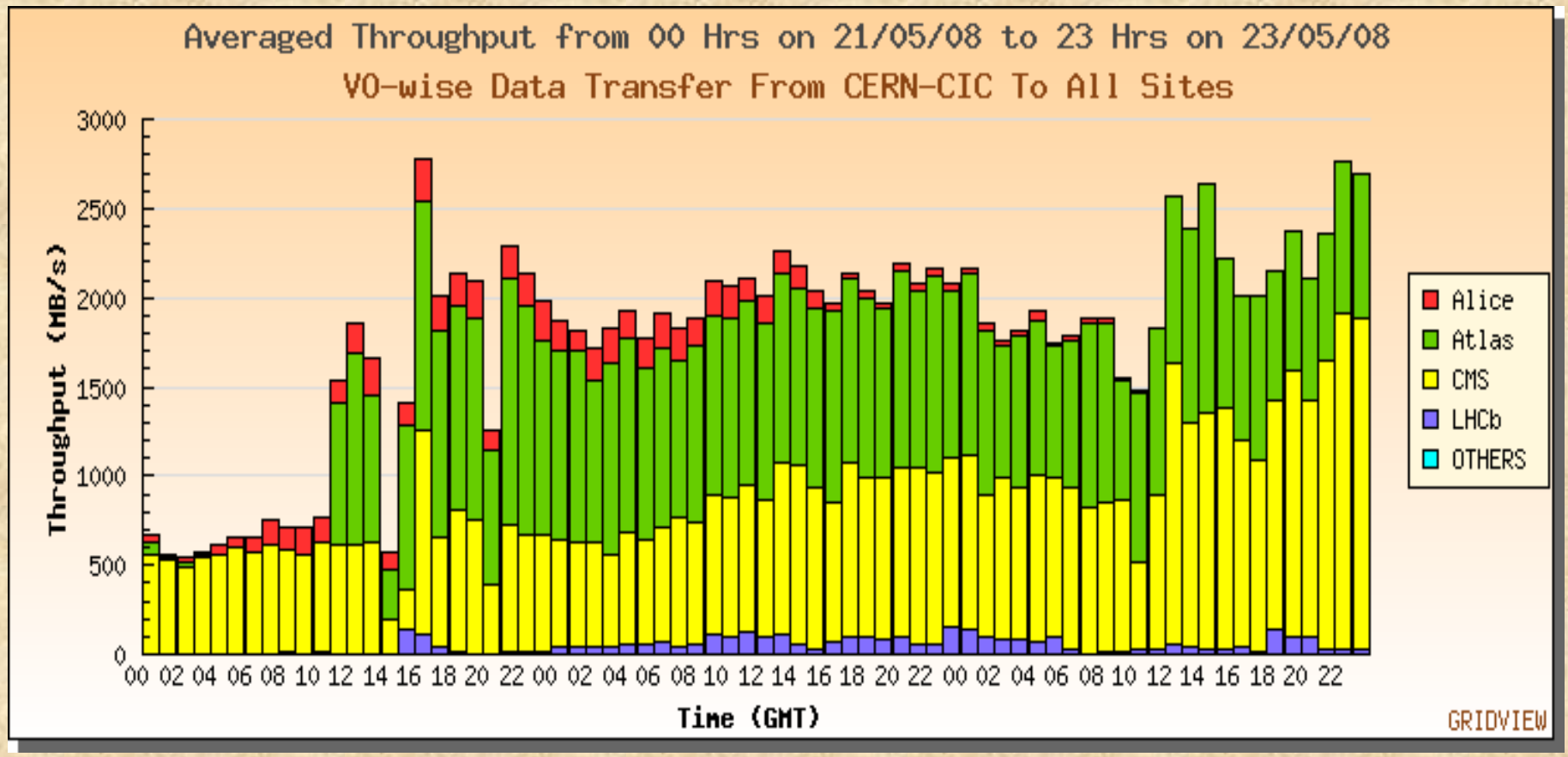
RuTier2 sites

Report on ALICE groups' activity (01.09.2008 - 30.09.2008)

	Pledged	Delivered		Occupancy	Efficiency	Job statistics			Storage		
Group	KSI2K	CPU	Wall	Wall/Pledged	CPU/Wall	Assigned	Completed	Efficiency	Size	Used	Usage
1. CERN	1102	89.24	132.9	12.06%	67.15%	56393	29476	52.27%	5.477 PB	3.71 PB	67.73%
2. China	0	-	-	-	-	-	-	-	-	-	-
3. Czech Republic	95	83.27	96.22	101.3%	86.54%	9979	7947	79.64%	20.67 TB	10.64 TB	51.48%
4. Germany	3292	1004	1134	34.47%	88.54%	140721	95080	67.57%	5.933 PB	262.7 TB	4.324%
5. Greece	80	28.84	33.69	42.12%	85.61%	2861	1980	69.21%	-	-	-
6. HLT	60	-	-	-	-	-	-	-	-	-	-
7. Hungary	90	38.55	44.31	49.23%	87.01%	6298	4502	71.48%	-	-	-
8. IN2P3	1904	1019	1147	60.27%	88.87%	182390	104139	57.1%	1.763 PB	131.4 TB	7.282%
9. INFN	1776	481.8	710.5	40.01%	67.81%	168028	55596	33.09%	1.068 PB	102.4 TB	9.37%
10. India	450	0.011	13.09	2.91%	0.086%	22752	0	0	-	-	-
11. Mexico	22	2.994	3.924	17.83%	76.31%	498	181	36.35%	-	-	-
12. NDGF	1193	409.7	483.3	40.51%	84.77%	73273	44358	60.54%	930.8 TB	202.5 TB	21.76%
13. Other	5	-	-	-	-	-	-	-	-	-	-
14. Poland	226	225.6	258.2	114.3%	87.38%	32458	20139	62.05%	-	-	-
15. RDIG	1059	470.7	607.1	57.33%	77.52%	77768	43227	55.58%	107.9 TB	690.4 GB	0.625%
16. Republic of Korea	132	41.54	55.35	41.93%	75.05%	1442	755	52.36%	-	-	-
17. Romania	675	576.8	654.8	97.01%	88.08%	78739	46424	58.96%	121.6 TB	14.14 TB	11.63%
18. Slovakia	80	0.785	0.824	1.029%	95.34%	136	0	0	-	-	-
19. South Africa	10	-	-	-	-	-	-	-	-	-	-
20. Spain	239	63.93	75.89	31.75%	84.24%	7629	6061	79.45%	-	-	-
21. The Netherlands	475	480.9	528.9	111.4%	90.92%	65000	54908	84.47%	-	-	-
22. UK	182	0.142	0.15	0.083%	94.18%	96	0	0	90.95 PB	60 KB	0%
23. US	1100	0	0.877	0.08%	0.024%	1509	19	1.259%	-	-	-
24. Ukraine	1130	20.7	22.47	1.989%	92.1%	2511	1045	41.62%	-	-	-
Total	**15377**	**5040**	**6005**			**930481**	**515837**		**106.3 PB**	**4.417 PB**	

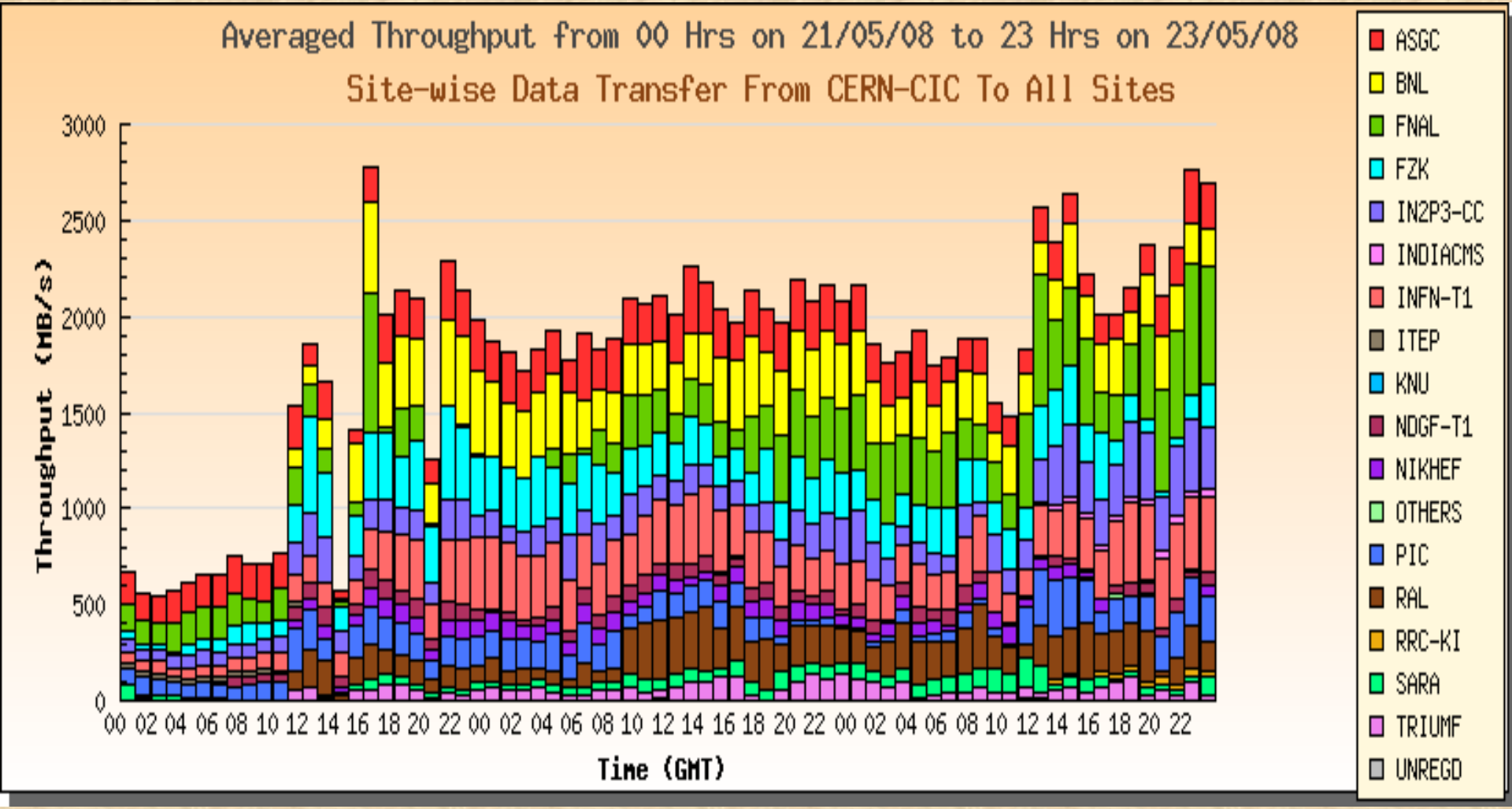
WLCG Project Status Report Resource Review Board – 11th Nov 2008

CERNRRB2008101, I. Bird



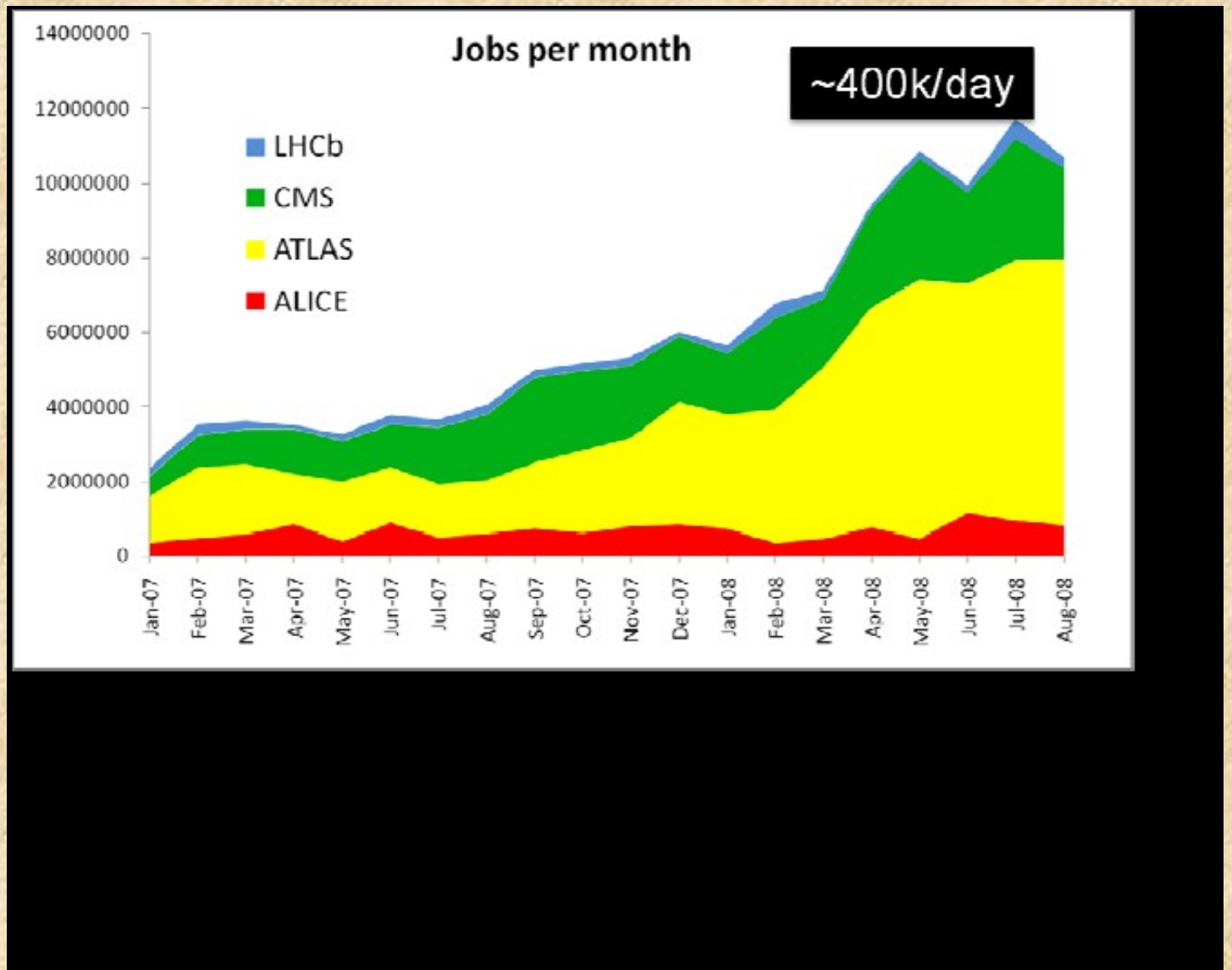
WLCG Project Status Report Resource Review Board – 11th Nov 2008

CERNRRB2008101, I. Bird



WLCG Project Status Report Resource Review Board – 11th Nov 2008

CERNRRB2008101, I. Bird



CMS RDMS computing
requirements development in 2008

Basic requirements to CMS T2 sites for Physics group hosting:

a) regular file transfer test "OK"

b) CMS job robot test "OK"

c) disk space ~ 100 TB for:

- primary data sets (~30TB)
- physics group space (~30TB)
- MC samples (~30TB)
- local CMS users space (~10 TB)

Challenge:

- *end 2008 to provide efficient access to 10 TeV MC samples for RDMS physicists*
- *2009 reconstruction of SM processes and objects*

CMS – Tier-2 allocation – *DRAFT*

	T2_AT	T2_BE	T2_BR	T2_DE	T2_CH	T2_EE	T2_ES	T2_FI	T2_FR	T2_IT	T2_KR	T2_RU	T2_TW	T2_UK	T2_US	*Totals*
FWD phys				1											1	2
QCD				1		1			1						1	4
Higgs							1			1				1	1	4
EWK							1		1	1				1	1	5
SUSY	1			1						1					1	4
Top		1					1		1				1		1	5
Exotica									1			1		1	1	4
B Physics					1			1							1	3
Heavy Ions												1				1
egamma									1	1				1	1	4
Jets/MissET HCAL								1			1	1			1	4
Muons							1			1		1			1	4
B-Tagging	1			1					1						1	4
Tracker			1						1	1					1	4
Particle Flow									1	1					1	3
Trigger DPG				1			1							1	1	4
Current Resources	0	1	1	3	0	1	5	2	8	5	1	1	0	4	15	48
Fall Resources	2	1	1	5	1	1	5	2	9	7	1	4	1	5	15	60

Subscription of ATLAS FDR data in Russian sites

- **Rates of FDR data replicated to RuTier2 sites:**
  - **JINR-LCG2_DATADISK : 50% Jet (RU-PROTVINO-IHEP_DATADISK)**
  - **JINR-LCG2_DATADISK : 50% MinBias (RU-PROTVINO-IHEP_DATADISK)**
  - **JINR-LCG2_DATADISK : 50% Muon (RU-PROTVINO-IHEP_DATADISK)**
  - **JINR-LCG2_DATADISK : 50% Bphysics (RU-PNPI_DATADISK)**
  - **RU-PROTVINO-IHEP_DATADISK : 50% Jet (JINR-LCG2_DATADISK)**
  - **RU-PROTVINO-IHEP_DATADISK : 50% Muon (JINR-LCG2_DATADISK)**
  - **RU-PROTVINO-IHEP_DATADISK : 50% MinBias (JINR-LCG2_DATADISK)**
  - **RU-PROTVINO-IHEP_DATADISK : 50% Egamma (RU-PNPI_DATADISK)**
  - **RU-PNPI_DATADISK : 50% Egamma (RU-PROTVINO-IHEP_DATADISK)**
  - **RU-PNPI_DATADISK : 50% Bphysics (JINR-LCG2_DATADISK)**
  - **RU-PNPI_DATADISK : 50% Jet (RRC-KI_DATADISK)**
  - **RU-PNPI_DATADISK : 50% MinBias (RRC-KI_DATADISK)**
  - **RRC-KI_DATADISK : 50% Jet (RU-PNPI_DATADISK)**
  - **RRC-KI_DATADISK : 50% MinBias (RU-PNPI_DATADISK)**
  - **RRC-KI_DATADISK : 50% Egamma**
  - **RRC-KI_DATADISK : 50% Bphysics**

Summary - end 2008 – to 2009

- Six basic RuTier2 sites show stable work in WLCG and ready to first data coming:

  RRC KI, JINR, SINP MSU, ITEP, IHEP, PNPI

- 5 sites are of Tier3 level and are preparing to serve local users:

  INR RAS, MEPhI, LPI, StPSU, BINP

- New challenge coming from the physics analysis groups in Experiments: *new requirements for T2 resource installation.*

- Old issues with networking - *the progress is significant.*

- Regular resource development – *more understanding is needed for 2009 resource installations.*