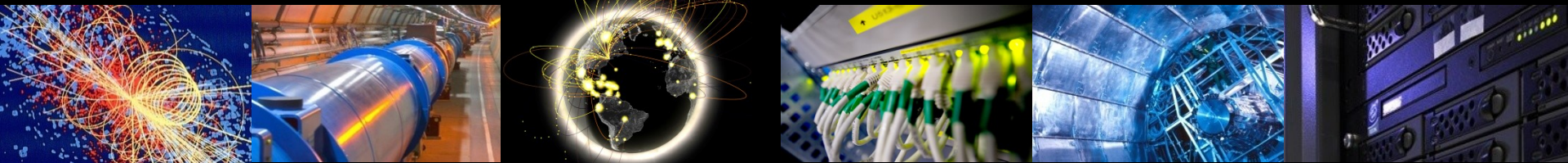


Resources and Financial Plan

Sue Foffano

WLCG Resource Manager

C-RRB Meeting, 12th April 2011



Agenda

- WLCG Collaboration & MoU status
- Funding and expenditure for WLCG at CERN
- Resource usage accounting
 - CERN and external Tier-1s
 - Tier-2s
- Resource pledges
 - Evolution of 2011 pledges since last C-RRB meeting
 - Status of the 2011 resource installations
 - 2012 and 2013 resource pledge data
- Summary

Supporting information can be found in

- Written report (CERN-RRB-2011-021)
- WLCG web pages: Lcg.web.cern.ch/LCG
- WLCG public pages: Lcg.web.cern.ch/LCG/public



CERN



US-BNL

Amsterdam/NIKHEF-SARA



Taipei/ASGC



Bologna/INFN



Ca-
TRIUMF

WLCG Collaboration Status
Tier 0; 11 Tier 1s; 67 Tier 2 federations
(131 Tier 2 sites)

MoU's have been signed with the following 35 countries:

Australia, Austria, Belgium, Brazil, Canada, China, Czech Rep, Denmark, Estonia, Finland, France, Germany, **Greece**, Hungary, India, Israel, Italy, Japan, Rep. Korea, Netherlands, Norway, Pakistan, Poland, Portugal, Romania, Russia, Slovenia, Spain, Sweden, Switzerland, Taipei, Turkey, UK, Ukraine, USA.



NDGF



US-FNAL



Barcelona/IFIC



Lyon/CCIN2P3



UK-RAL



De-FZK

WLCG MoU Status

- Since the last C-RRB meeting 2 further MoU signatures:
 - USA, Lawrence Berkeley National Laboratory (LBNL) as an ALICE Tier-2
 - Greece, University of Ioannina, as a CMS Tier-2
- Reminder all Federations, sites, WLCG Collaboration Representative names and Funding Agencies are documented in MoU annex 1 (Tier 0-1's) and annex 2 (Tier 2's)
 - Overall goal: ensure the WLCG collaboration is correctly documented reflecting the situation in 35 countries
 - lcg.office@cern.ch depends on your input to achieve this
 - Please check your details and signal any anomalies

Tier1

<i>Centre</i>	<i>Experiments served with priority</i>				<i>Representative to WLCG Collaboration</i>	<i>Funding Agencies</i>
	<i>ALICE</i>	<i>ATLAS</i>	<i>CMS</i>	<i>LHCb</i>		
Canada, TRIUMF		X			M. Vetterli	CFI
France, CC-IN2P3	X	X	X	X	F. Malek (deputy: F. Chollet)	CNRS/ IN2P3 and CEA/ DSM/ IRFU
Germany, KIT	X	X	X	X	W. Juling (deputy: A. Streit)	BMBF/ KIT
Italy, CNAF	X	X	X	X	M. Morandin (deputy: L. Dell'Agnello)	INFN
Netherlands LHC/ Tier1	X	X		X	J. Templon	NIKHEF
Nordic Data Grid Facility (NDGF)	X	X	¹		L. Fischer	NSRC/ HIP/ RCN/ SRC
Spain, PIC		X	X	X	M. Delfino (deputy: G. Merino)	MEC
Taipei, ASGC		X	X		S. Lin	Academia Sinica
UK, RAL	X	X	X	X	N. Geddes	STFC
USA, BNL		X			M. Ernst (alt.: R. Popescu)	DOE
USA, FNAL			X		V. White	DOE

¹ NDGF serves as a CMS Tier-2 resource

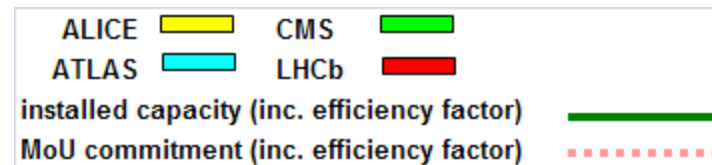
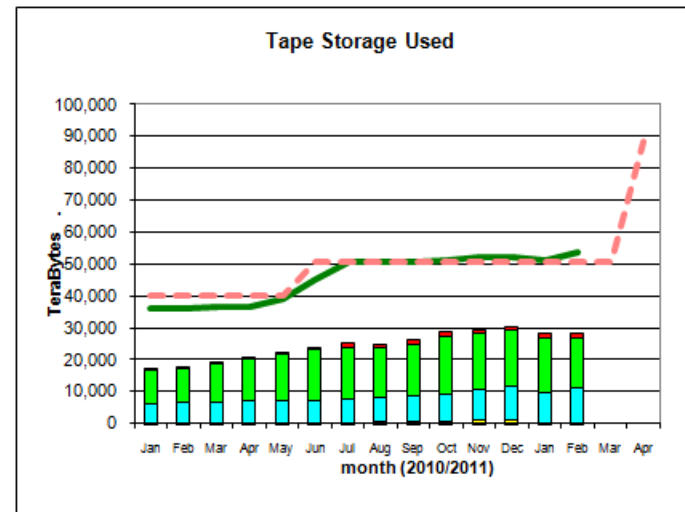
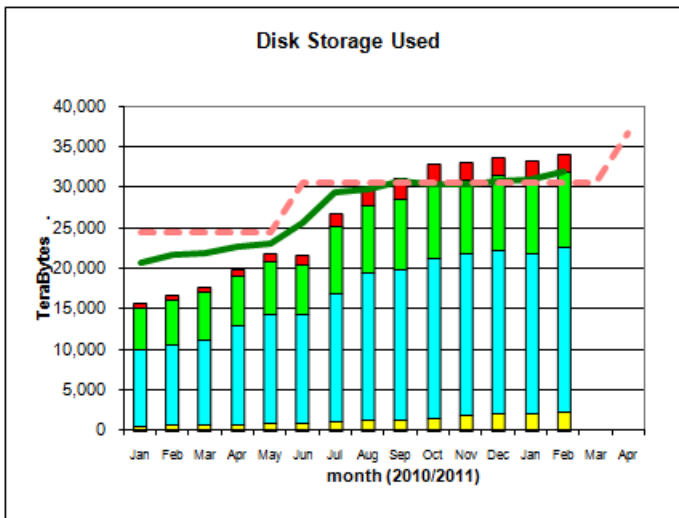
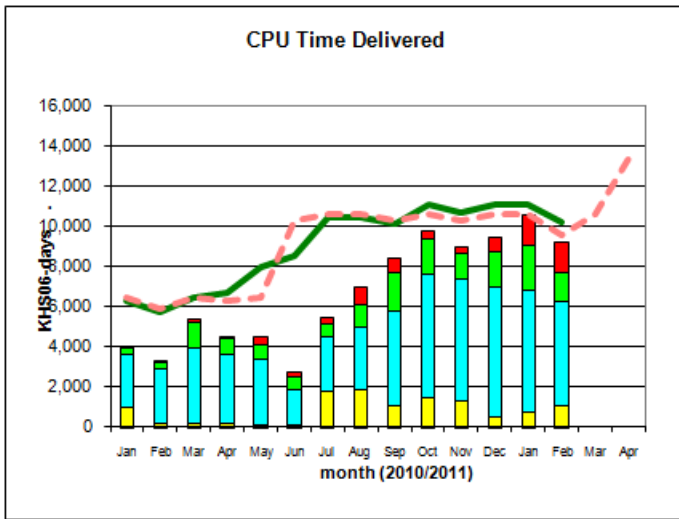
Funding and expenditure for WLCG at CERN

- WLCG 2010 book closed status:
 - Personnel 13,578 kCHF, Material 20,770 kCHF
 - ❖ 5.9 MCHF material's budget carried forward to 2011
 - Personnel: planning tool APT used for cost estimates of current contracts, planned replacements and impact of EGI/EMI projects on personnel budget
 - Materials: cost planning significantly revised due to
 - ❖ Summer 2010 CERN budget cuts impacting WLCG 2011-2013
 - ❖ LHC run schedule: planning adapted to 2012 run and consequences for 2013+
 - ❖ Preliminary experiment requirements – not validated by CRSG
 - Remote Tier-0 planning remains approximate until tender adjudication

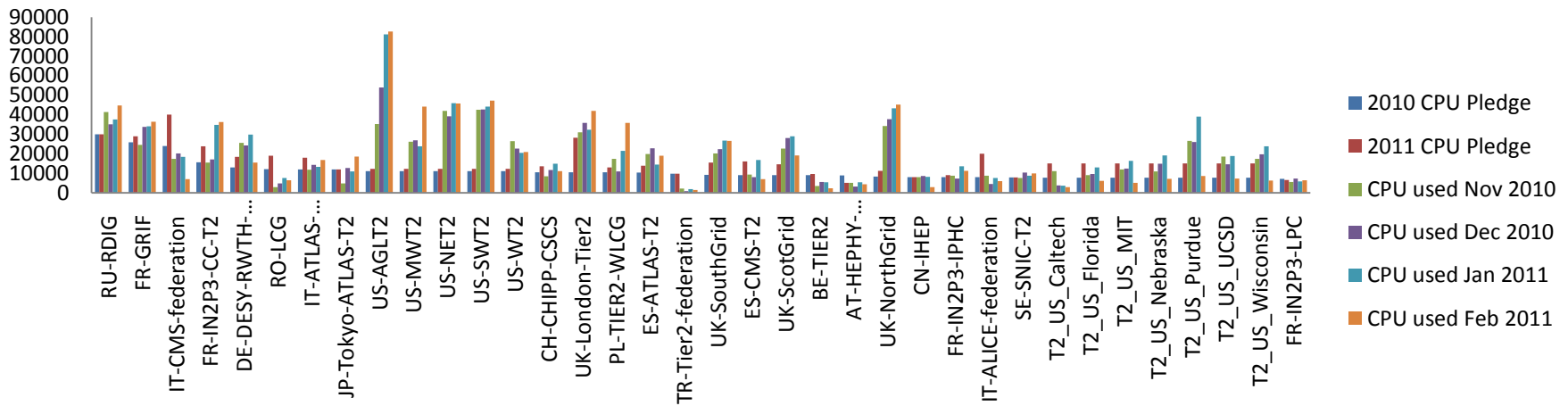
LHC Future Computing Funding and Expenditure Estimates							
(all figures in MCHF)							
	2011	2012	2013	2014	2015	2016	TOTAL
Funding							
From CERN Budget							
- Personnel	14.6	14.9	15.7	15.9	16.0	16.0	93.1
- Materials *	27.9	21.3	23.9	23.7	21.6	21.6	139.8
Contributions via Team Accounts**							
- Personnel	1.1						1.1
- Materials							
Total							
- Personnel	15.7	14.9	15.7	15.9	16.0	16.0	94.1
- Materials	27.9	21.3	23.9	23.7	21.6	21.6	139.8
Total Funding	43.5	36.1	39.6	39.6	37.5	37.5	234.0
Expenditure							
- Personnel ***	16.0	15.0	15.3	15.8	15.8	15.9	93.8
- Materials	26.0	29.9	19.4	23.4	23.0	20.6	142.3
Total Planned Expenditure	42.0	44.9	34.6	39.2	38.8	36.5	236.1
Balance Personnel	-0.3	-0.2	0.4	0.1	0.2	0.1	0.4
Balance Materials	1.9	-8.6	4.5	0.2	-1.5	0.9	-2.5
Balance	1.6	-8.8	4.9	0.4	-1.3	1.0	-2.1
* Includes 5.9 MCHF carry-forward from 2010 to 2011							
** As planned to be pledged in the WLCG MoU (Annex 6.6)							
** Excluding EGI/EMI funded personnel and Computer Centre Operators							

Tier-1 and Tier-2 Accounting

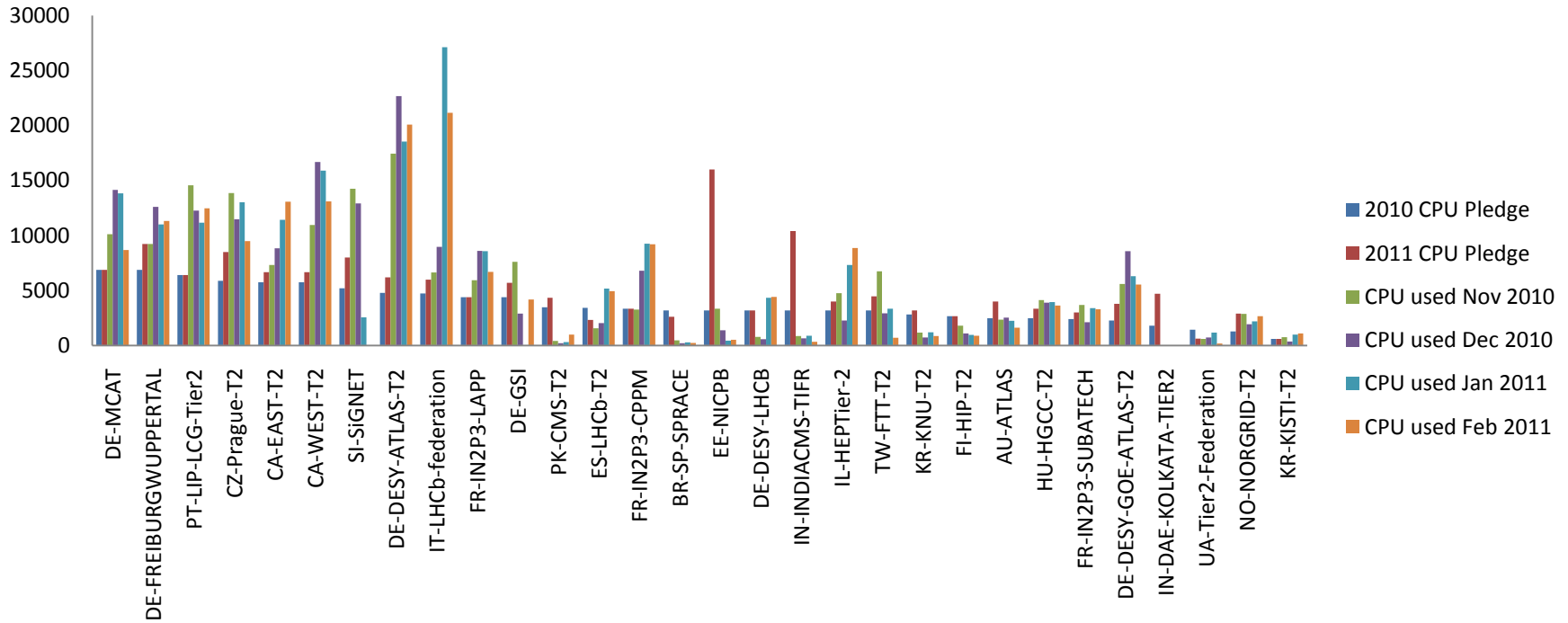
- Monthly reports available after 8th for preceding month
- Sites are encouraged to consult the Accounting Portal and check the monthly reports (1 week grace period)
- Tier-2 Federations mentioned as not reporting at the last meeting:
 - Germany GSI : resolved, included since October 2010
 - India VECC Kolkata : still under investigation
 - Ukraine : resolved, included in draft March 2011 accounting report
- Tier-2 sites (within Federations) not reporting or not publishing correctly being reviewed e.g. via GDB



Tier-2 Federations with 2010 CPU pledge >7000 HS06



Tier-2 Federations with 2010 CPU pledge < 7000 HS06



Evolution of pledges since last C-RRB

- At last C-RRB meeting a summary of pledge data was shown including most 2011 confirmed pledge data
- A revised set of tables was submitted to all delegates on 15/12/10 including:
 - Confirmation from Sweden about their pledge and pledge data from Ukraine
 - The risk of pledge reduction at the French Tier-1 and Tier-2's following budget cuts
 - Explanations from the 5 Tier-2 sites whose CPU and/or Disk pledge was reduced in 2011
- In February 2011 the French representative confirmed the impact of the budget cut on their 2011 pledges
 - ~6% reduction on CPU, Disk and Tape at the Tier-1
 - 3 of the 7 French Tier-2's impacted with reductions to CPU and disk pledges
- Pledges are now recorded in the gstat tool, recently renamed to REBUS (**RE**source **B**alance and **US**age) including updates, tracking of changes and notes justifying the changes

WLCG Evolution of pledges since last C-RRB

Year: 2011

All Tiers Tier 0 Tier 1 Tier 2

Search:

Tier	Pledge Type	ALICE	Required	Balance	ATLAS	Required	Balance	CMS	Required	Balance	LHCb	Required	Balance	SUM	Required	Balance
Tier 0	CPU (HEP-SPEC06)	62,000	62,000	0%	75,000	75,000	0%	106,100	106,100	0%	21,000	21,000	0%	264,100	264,100	0%
Tier 0	Disk (Tbytes)	6,100	6,100	0%	7,000	7,000	0%	4,500	4,500	0%	1,500	1,500	0%	19,100	19,100	0%
Tier 0	Tape (Tbytes)	6,800	6,800	0%	12,200	12,200	0%	21,600	21,600	0%	2,500	2,500	0%	43,100	43,100	0%
Tier 1	CPU (HEP-SPEC06)	71,471	117,000	-39%	250,208	226,000	11%	132,173	150,700	-12%	70,432	65,000	8%	524,284	558,700	-6%
Tier 1	Disk (Tbytes)	5,527	7,900	-30%	26,869	24,800	8%	16,254	19,500	-17%	3,817	3,500	9%	52,467	55,700	-6%
Tier 1	Tape (Tbytes)	8,013	13,000	-38%	31,959	30,100	6%	44,392	52,400	-15%	3,933	3,470	13%	88,297	98,970	-11%
Tier 2	CPU (HEP-SPEC06)	81,574	121,000	-33%	281,228	278,000	1%	315,363	319,500	-1%	47,962	36,000	33%	726,127	754,500	-4%
Tier 2	Disk (Tbytes)	5,878	6,600	-11%	34,202	37,600	-9%	20,392	19,900	2%	295	20	1375%	60,767	64,120	-5%

2011 pledge per experiment and summary status dated 04/10/10 shown at last C-RRB

Year: 2011

All Tiers Tier 0 Tier 1 Tier 2

Search:

ote: Sorting by multiple columns at the same time can be activated by 'shift' clicking on the column headers which they want to add to the sort. Hovering mouse over the column headers to get descriptions of table columns.

Tier	Pledge Type	ALICE	Required	Balance	ATLAS	Required	Balance	CMS	Required	Balance	LHCb	Required	Balance	SUM	Required	Balance
Tier 0	CPU (HEP-SPEC06)	62,000	62,000	0%	75,000	75,000	0%	106,100	106,100	0%	21,000	21,000	0%	264,100	264,100	0%
Tier 0	Disk (Tbytes)	6,100	6,100	0%	7,000	7,000	0%	4,500	4,500	0%	1,500	1,500	0%	19,100	19,100	0%
Tier 0	Tape (Tbytes)	6,800	6,800	0%	12,200	12,200	0%	21,600	21,600	0%	2,500	2,500	0%	43,100	43,100	0%
Tier 1	CPU (HEP-SPEC06)	70,980	117,000	-39%	248,310	226,000	10%	131,358	150,700	-13%	69,418	65,000	7%	520,066	558,700	-7%
Tier 1	Disk (Tbytes)	5,527	7,900	-30%	26,660	24,800	8%	16,149	19,500	-17%	3,762	3,500	7%	52,098	55,700	-6%
Tier 1	Tape (Tbytes)	8,013	13,000	-38%	31,706	30,100	5%	44,108	52,400	-16%	3,878	3,470	12%	87,705	98,970	-11%
Tier 2	CPU (HEP-SPEC06)	80,775	121,000	-33%	278,964	278,000	0%	306,434	319,500	-4%	40,629	36,000	13%	706,802	754,500	-6%
Tier 2	Disk (Tbytes)	5,758	6,600	-13%	33,898	37,600	-10%	20,168	19,900	1%	211	20	955%	60,035	64,120	-6%

2011 pledge per experiment and summary status dated 08/04/11

2011 Resource installation status

- April for resource pledge availability has been resumed for 2011 and beyond
- Therefore in theory most/all of the 2011 pledged resources should already be fully installed and on-line
- In future it will be possible to automatically retrieve this information, but we are dependant on all sites publishing their resources correctly – being followed up on for the Tier-2's
- In the interests of giving the C-RRB a global overview of the 2011 resource installation status at the Tier-0, Tier-1's and Tier-2's
 - Installation information has been cross-checked via the WLCG Management Board representatives and/or directly with the site representatives
 - Installation information has been collected/updated within the last 2 weeks
 - At many sites not only are pledges fulfilled, they are exceeded

2011 T-1 Resource installation status

Site	CPU	Disk	Tape
CERN	Installed	Installed	OK
Canada, TRIUMF	Installed	Installed	Installed
France, CC-IN2P3	6% cut, 50% April, 100% June	6% cut, 30% mid-April, 100% June	6% cut, OK
Germany, GridKA	Installed	Installed	OK
Italy, CNAF	Most installed (rest Q3)	Installed	OK
Netherlands, NIKHEF/SARA	Funding ok, started, not before summer	Summer	Summer
NDGF	In production	In production	In production
Spain, PIC	In production	In production	In production
Tapei, ASGC	100% by end April	100% by end April	In production
UK, RAL	Installed	Installed	OK
USA, BNL	Installed	Installed	Installed
USA, FNAL	Installed	Installed	OK

2011 T-2 Resource installation status

Federation	CPU	Disk
Austria, Austrian Tier-2 Federation	Reduced pledge fully available	Reduced pledge fully available
Australia, University of Melbourne	45% available, 100% expected by May	45% available, 100% expected by May
Brazil, SPRACE, Sao Paulo	Reduced pledge fully available	Reduced pledge fully available
Belgium, Belgian Tier-2 Federation	85% installed, 100% expected by May	75% installed, 100% expected by September
Canada, Canada-East Federation	Pledge fully available	75% installed, 100% expected by July
Canada, Canada-West Federation	Pledge fully available	Pledge fully available
China, IHEP, Beijing	Pledge fully available	Pledge fully available
Czech Rep., FZU AS Prague	Pledge fully available	Pledge fully available
Estonia, NICPB	Reduced pledge fully available	Pledge fully available
Finland, NDGF/HIP Tier 2	Pledge fully available	70% installed, 100% expected by June
France, 7 Tier-2's (of which 3 with reduced pledges)	Pledge fully available	Pledge fully available

2011 T-2 Resource installation status

Federation	CPU	Disk
Germany, GSI, Darmstadt	Pledge fully available	Delivered, fully available by May
Germany, 5 remaining Tier-2 Federations	Pledge fully available	Pledge fully available
Hungary, HGCC Federation	Pledge fully available	Pledge fully available
India, TIFR, Mumbai	75% available, 100% expected mid-June	55% available, 85% expected mid-June, 100% by December
India, VECC/SINP, Kolkata	-	-
Israel, HEP-IL Tier-2 Federation	Pledge fully available	85% available, 100% expected late June
Italy 4 Tier-2 Federations	100% expected by end July	100% expected by September
Japan, ICEPP, Tokyo	Pledge fully available	Pledge fully available
Republic of Korea, KISTI, Daejon	Pledge fully available	Pledge fully available
Republic of Korea, CHEP of KNU, Daegu	66% available, 100% expected December	94% available, 100% expected December
Norway, UNINETT SIGMA Tier-2	Pledge fully available	~30% installed, 100% ?

2011 T-2 Resource installation status

Federation	CPU	Disk
Pakistan, Pakistan Tier-2 Federation	Pledge fully available	~25% installed, 55% by May, 100% by July
Poland, Polish Tier-2 Federation	-	-
Portugal, LIP Tier-2 Federation	Pledge fully available	Pledge fully available
Romania, Romanian Tier-2 Federation	Pledge fully available	90% available, 100% expected by May
Russian Fed., Russian Data-Intensive GRID	Pledge fully available	Pledge fully available
Slovenia, SiGNET, Jozef Stefan Institute	-	-
Spain, ATLAS Federation	95% installed, 100% by June	80% installed, 100% by June
Spain CMS Federation	Pledge fully available	Installed, currently being deployed
Spain LCHb Federation	Pledge fully available	Pledge fully available
Sweden, SNIC Tier-2	Pledge fully available	Pledge fully available
Switzerland, CHIPP	Pledge fully available	Pledge fully available
Taipei, Taiwan Analysis Facility	Pledge fully available	Pledge fully available

2011 T-2 Resource installation status

Federation	CPU	Disk
Turkey, Turkish Tier-2 Federation	50% in production, 100% by September	Pledge fully available
UK, 4 Tier-2 Federations	Pledge fully available	Pledge fully available
Ukraine, Ukrainian Tier-2 Federation	30% in production, 100% by December	50% installed, 100% by December
USA, 5 ATLAS Tier-2 Federations	Pledge fully available	~90% installed, 100% expected by June
USA, 7 CMS Tier-2 Federations	50% increment expected end June, 100% end September	50% increment expected end June, 100% end September

2012 and 2013 resource pledges

- As follow-up to the C-RRB meeting and the result of the Scrutiny Group's work, experiment requirements for 2012 and 2013 will soon be published
- This will be the basis to submit pledge input:
 - Confirmed pledges for 2012 i.e. installed and available by 01/04/2012
 - Planned pledges for 2013 i.e. best estimate, to be reviewed and confirmed in October 2012
 - To be entered directly into REBUS by each Federation
 - Deadline for submission 30/09/2011
- The result will be presented at the Autumn C-RRB meeting

Summary

- WLCG MoU: 2 new additions as Tier-2 collaborators: US LBNL and Greece. MoU to be maintained up to date with additions or changes to existing information particularly annex 1 & 2
- WLCG Funding & Expenditure: frequent revisions continue, flexibility required to overcome materials shortfall foreseen e.g. in 2012
- Tier-1 and Tier-2 accounting: to be checked frequently
 - Tier-2 Federation not reporting must resolve their problems
 - Site publishing to be followed up to automatically collect installed capacity data in future
- Installation status of 2011 pledged resources globally positive
 - Continued follow-up of pledge installation
- Experiment Requirements for 2012/2013 to be published as a basis for site pledge input
- For next meeting pledge input required
 - 2012 confirmed pledge data
 - 2013 planned pledge data
 - To be entered directly in REBUS before 30/09/2011 for reporting at the October 2011 C-RRB meeting