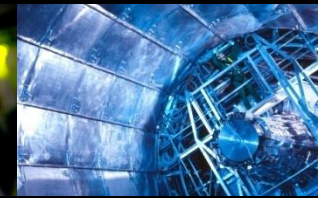


Accounting For Multicore Jobs

John Gordon, STFC, UK

Scientific Computing Department,
APEL Team



Overview

- Publishing of multicore accounting
- Prototype Portal View
- Encourage remaining sites to start publishing

Multicore

- [Accounting of Multicore jobs requires publishing to the EMI3 APEL database.](#)
- All EGI sites have now migrated to EMI3 accounting clients.
- There are several ways of publishing:
 - The apel client.
 - ARC CE. NDGF sites publish via SGAS. SGAS recently migrated to SSM2 so Ncores and ncpus are published.
 - Other ARC CEs use JURA which publishes direct to APEL from each CE so there is no site database. Ncores and ncpus are published.
 - OSG are planning the change to SSM2. They will start to publish cores at the same time. Tests have been successful and they should start publishing in production soon.
 - NIKHEF who publish from their own accounting database migrated in December.
 - CERN who publish from their own accounting database, migrated early this year.
 - Italian sites have all(?) migrated from DGAS to use the standard APEL client so they (can) now publish cores.
 - Other middleware stacks like Globus, Unicore, DTG, QCG went straight to SSM2. (not relevant to WLCG)

Apel Client

- APEL parser gathers data on number of cpus and cores from the batch systems provided an option is switched on. `parallel=true`
- **This option is off by default so multicore sites need reminding to turn it on.**
- First priority is to get sites publishing from now.
- If they want to backdate their publishing they will need to re parse their batch logs
- APEL will provide detailed instructions on this
- We plan to change the default setting to `parallel=true` in the next release but this will only take effect for fresh installations. An update does not overwrite the local config. You would not want it to.
- **Currently cannot retrieve number of cpus from (S)GE.**

Portal Multicore View

- http://accounting-devel.egi.eu/show.php?query=sum_normcpu&startYear=2015&startMonth=3&endYear=2015&endMonth=3&yrange=REGION&xrange=NUMBER+PROCESSORS&groupVO=lhc&chart=GRBAR&scale=LIN&localJobs=onlygridjobs
- The development portal now has a view including ncores (Processors) and ncpus(Nodes) for those sites which publish them.
- Views include Wallclock and Wallclock*ncores
- Efficiency based on Wallclock*ncores
- Once everyone is publishing then this portal view will be complete
- **Ncores=0 highlights sites who have not set parallel=true**
- **This view can also display data by SubmitHost which shows which CEs at a site are publishing**

Status

- Multicore reporting is available for all production WLCG sites through production APEL repository. (~ OSG v soon)
- Cannot be visible in production portal until historical data can be integrated.
- Not all sites have configured their clients to send data on number of cores.

EGI ACCOUNTING PORTAL



- GLOBAL View
- VO MANAGER View
- VO MEMBER View
- SITE ADMIN View
- REPORTS
- METRICS PORTAL
- LINKS

dteam VO: Exclude dteam and ops VOs jobs information

Local Jobs: Grid Jobs Only Grid Jobs and Local Jobs Local Jobs Only

Refresh

Normalised CPU

by REGION and NUMBER PROCESSORS.
LHC VOs. March 2015 - March 2015.

March 2015

The following table shows the distribution of grouped by REGION and NUMBER PROCESSORS (only information about LHC VOs is returned).

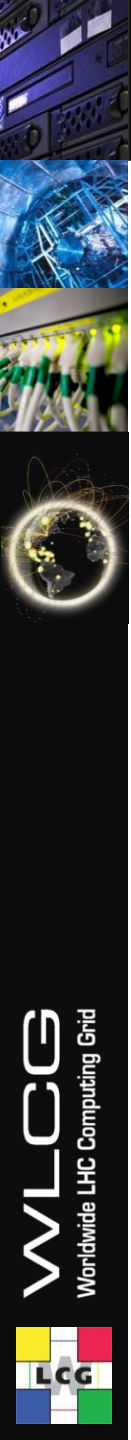
by REGION and NUMBER PROCESSORS															Total	%
REGION	0	1	2	3	4	5	6	8	12	16	20	Total	%			
AfricaArabia	247,989	1,368,860	0	0	0	0	0	0	0	0	0	1,616,850	0.30%			
AsiaPacific	20,119,202	1,541,696	0	0	0	0	0	254,337	0	0	0	21,915,235	4.08%			
CERN	0	31,027,630	0	0	0	0	0	992,220	0	0	0	32,019,850	5.96%			
NGI_ARMGRID	49,891	0	0	0	0	0	0	0	0	0	0	49,891	0.01%			
NGI_CH	27,521	3,127,198	2	0	0	0	0	2,890,574	0	179	0	6,045,474	1.13%			
NGI_CHINA	2,183,231	0	0	0	0	0	0	0	0	0	0	2,183,231	0.41%			
NGI_CZ	0	6,418,311	0	0	0	0	0	262,503	0	0	0	6,680,814	1.24%			
NGI_DE	3,664,890	78,227,454	0	0	0	0	0	9,828,028	0	396,968	0	92,117,340	17.16%			
NGI_FRANCE	0	77,554,235	0	0	0	0	0	7,961,931	0	0	0	85,516,166	15.93%			
NGI_GRNET	36,843	224,044	0	0	0	0	0	0	0	0	0	260,887	0.05%			
NGI_HR	3	0	0	0	0	0	0	0	0	0	0	3	0.00%			
NGI_HU	792,907	0	0	0	0	0	0	0	0	0	0	792,907	0.15%			
NGI_IBERGRID	8,863,258	8,801,656	0	0	0	0	0	3,540,776	0	0	0	21,205,690	3.95%			
NGI_IL	751,360	1,385,407	0	0	0	0	0	0	0	0	0	2,136,767	0.40%			
NGI_IT	11,692,266	32,858,741	207,793	0	0	0	0	7,926,389	0	0	0	52,685,189	9.81%			
NGI_NDGF	0	4,677,741	290	158	8	8	0	1,374,344	453,267	0	0	6,505,815	1.21%			
NGI_NL	1,438,402	14,616,419	52,112	0	5,647,091	0	0	778,716	0	0	0	22,529,739	4.20%			
NGI_PL	165,185	4,064,498	0	0	0	0	0	0	0	0	0	4,229,683	0.79%			
NGI_RO	1,763,223	767,789	0	0	0	0	0	173,304	0	0	0	2,704,315	0.50%			
NGI_SI	188,775	825,439	0	0	0	0	0	1,749,979	0	0	0	2,764,193	0.51%			
NGI_SK	0	3,595,342	0	0	0	0	0	699,383	0	0	0	4,294,925	0.80%			
NGI_TR	6,071,299	0	0	0	0	0	0	0	0	0	0	6,071,299	1.13%			
NGI_UA	1,320,522	6,308,978	0	0	0	0	0	0	0	0	0	7,629,501	1.42%			
NGI_UK	13,540,744	56,765,340	6	0	4	0	0	23,720,847	0	0	0	94,026,940	17.51%			
ROC_Canada	2,904,067	17,284,578	0	0	0	0	5,797,838	1,719,714	0	0	0	27,706,197	5.16%			
ROC_LA	861,565	6,018,336	0	0	0	0	0	0	0	0	0	6,879,900	1.28%			
Russia	1,749,842	21,016,144	0	0	0	0	0	2,070,378	1,514,489	0	0	26,350,849	4.91%			
Total	78,432,982	378,475,832	260,203	158	5,647,102	8	5,797,838	65,940,624	1,967,156	397,147	0	536,919,650				
Percentage	14.61%	70.49%	0.05%	0.00%	1.05%	0.00%	1.08%	12.28%	0.37%	0.07%	0.00%					

14.6% not publishing cores

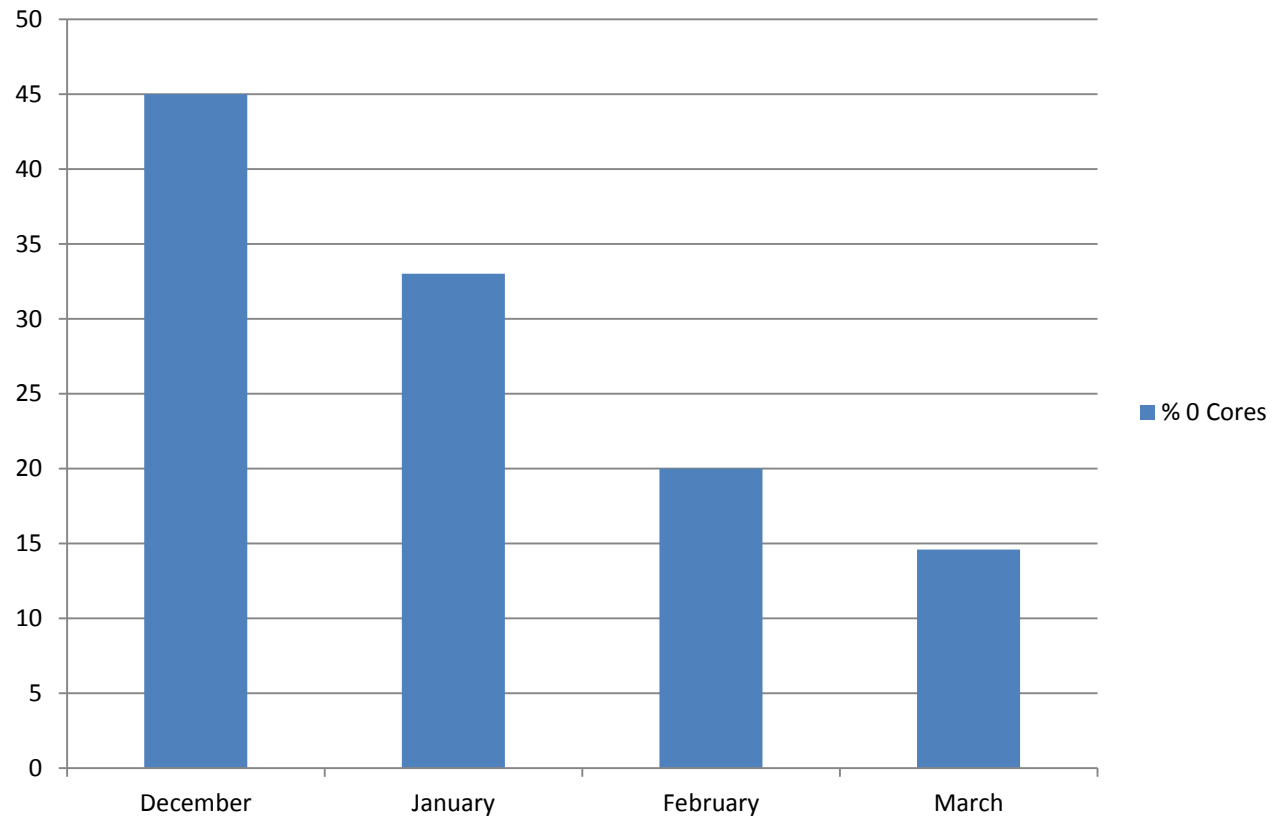
70.5% single core

12.3% 8 cores

[Click here for a CSV dump of this table](#)
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[Click here for XML encoded data](#)




Normalised CPU



- Countries publishing cores from all sites: CZ, France, NDGF, Slovakia
- Whole countries not publishing Multicore – Armenia, China, Hungary, Turkey
- Countries with a minority publishing AfricaArabia, AsiaPacific, Spain/Portugal, Romania
- There are still a lot of sites who publish cores from only a subset of their CEs. If these are CEs with multicore queues then we are capturing that. Do we need every CE to publish?

- Efficiency calculated from average cores

accounting-devel.egi.eu/show.php?query=cpueff&startYear=2015&startM...

EGE ACCOUNTING PORTAL 

GLOBAL View VO MANAGER View VO MEMBER View SITE ADMIN View REPORTS METRICS PORTA

Refresh

CPU Efficiency (%) by REGION and VO.
LHC VOs. March 2015 - March 2015.

The following table shows the distribution of CPU Efficiency (%) grouped by REGION and VO (only information about **LHC VOs** is returned).

CPU Efficiency (%) by REGION and VO					
REGION	alice	atlas	cms	lhcb	Total
AfricaArabia	93.6	96.7			95.1
AsiaPacific	90.4	38.4	35.7		54.8
CERN	68.6	67.3	77.2	88.4	72.9
NGI_ARMGRID	83.6	31.3			67.4
NGI_CH		77.4	100.0	100.0	92.5
NGI_CHINA		105.5	76.0		90.7
NGI_CZ	76.6	31.1			53.9
NGI_DE	100.0	53.2	65.4	99.9	79.6
NGI_FRANCE	93.4	52.3	45.8	97.2	72.1
NGI_GRNET	97.3	52.2	43.2	2.2	48.7
NGI_HR			22.8		22.8
NGI_HU	92.9		86.2	96.2	91.8
NGI_IBMGRID		66.7	39.0	97.0	67.6
NGI_IL		93.0		96.0	94.5
NGI_IT	85.5	71.9	62.5	96.3	79.0
NGI_NDGF	63.5	26.5	57.1		49.0
NGI_NL	94.0	81.2	73.6	97.6	86.6
NGI_PL	71.3	91.4	60.8	96.6	80.0
NGI_RO	97.0	75.4		96.2	89.5
NGI_SI		68.2			68.2
NGI_SK	88.9	63.8			76.3
NGI_TR		90.9	39.1		65.0
NGI_UA	88.2		81.1		84.7
NGI_UK	93.6	54.9	47.1	56.0	62.9
ROC_Canada		40.3			40.3
ROC_LA	95.9	72.3		96.4	88.2
Russia	82.2	59.9	35.8	95.5	68.3
Total	87.2	63.7	59.5	87.4	74.4

[Click here for a CSV dump of this table](#)
[Click here for an Extended CSV dump of this table](#)
[Click here for XML encoded data](#)

Key: 0% <= eff < 50%; 50% <= eff < 60%; 60% <= eff < 75%; 75% <= eff < 90%; 90% <= eff < 100%; eff >= 100% (parallel jobs)

EGI ACCOUNTING PORTAL



- GLOBAL View
- VO MANAGER View
- VO MEMBER View
- SITE ADMIN View
- REPORTS
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- LINKS

CPU Efficiency (%) by REGION and NUMBER PROCESSORS. LHC VOs. March 2015 - March 2015.

The following table shows the distribution of CPU Efficiency (%) grouped by REGION and NUMBER PROCESSORS (only information about **LHC VOs** is returned).

CPU Efficiency (%) by REGION and NUMBER PROCESSORS												
REGION	0	1	2	3	4	5	6	8	12	16	20	Total
AfricaArabia	96.7	93.6										95.1
AsiaPacific	88.4	85.5						77.5				83.8
CERN		77.1						76.5				76.8
NGI_ARMGRID	71.3											71.3
NGI_CH	253.3	91.0	100.0					67.6		18.0		106.0
NGI_CHINA	97.8											97.8
NGI_CZ		85.0						78.6				81.8
NGI_DE	152.4	103.0						84.4		70.2		102.5
NGI_FRANCE		91.6						74.4				83.0
NGI_GRNET	60.4	84.9										72.6
NGI_HR	22.8											22.8
NGI_HU	91.8											91.8
NGI_IBMGRID	94.5	89.7						67.0				83.7
NGI_IL	94.8	92.1										93.4
NGI_IT	69.5	86.6	44.0					68.2				67.1
NGI_NDGF		64.9	9.9	10.8	6.0	3.8		8.6	2.6			15.2
NGI_NL	76.0	94.1	39.9		87.6			68.8				73.3
NGI_PL	93.9	85.2										89.5
NGI_RO	93.9	90.0						54.6				79.5
NGI_SI	177.8	66.2						45.4				96.5
NGI_SK		89.4						79.7				84.6
NGI_TR	76.0											76.0
NGI_UA	79.5	90.5										85.0
NGI_UK	93.8	87.6	10.8		6.0			78.0				55.2
ROC_Canada	101.2	60.7					35.0	74.3				67.8
ROC_LA	88.0	95.8										91.9
Russia	59.1	88.1						78.8	48.4			68.6
Total	96.9	85.7	40.9	10.8	33.2	3.8	35.0	65.2	25.8			36.1

[Click here for a CSV dump of this table](#)

[Click here for an Extended CSV dump of this table](#)

[Click here for XML encoded data](#)

Key: 0% <= eff < 50%; 50% <= eff < 60%; 60% <= eff < 75%; 75% <= eff < 90%; 90% <= eff < 100%; eff >= 100% (parallel jobs)



Drill Down to a Country

accounting-devel.egi.eu/show.php?Path=1.23&query=sum_normcpu&startYear=2015&startMonth=3&endYear=2015&endMonth=3&yrange=S

EGi ACCOUNTING PORTAL

GLOBAL View VO MANAGER View VO MEMBER View SITE ADMIN View REPORTS METRICS PORTAL

Local Jobs: Grid Jobs Only Grid Jobs and Local Jobs Local Jobs Only

Refresh

NGI_DE by SITE and NUMBER PROCESSORS.
LHC VOs. March 2015 - March 2015.


The following table shows the distribution of grouped by SITE and NUMBER PROCESSORS (only information about LHC VOs is returned).

by SITE and NUMBER PROCESSORS						
SITE	0	1	8	16	Total	%
DESY-HH	1,794,888	30,390,384	0	0	32,185,271	34.94%
DESY-ZN	0	2,929,144	710,860	0	3,640,005	3.95%
FZK-LCG2	0	38,751,555	4,244,583	0	42,996,139	46.68%
GoeGrid	0	870,279	2,971	0	873,251	0.95%
LRZ-LMU	674,256	539,115	2,886,730	396,968	4,497,069	4.88%
MPPMU	1,141,561	2,819,530	0	0	3,961,091	4.30%
TUDresden-ZIH	0	1,145	0	0	1,145	0.00%
UNI-FREIBURG	0	254,363	1,265,799	0	1,520,162	1.65%
UNI-SIEGEN-HEP	53,689	0	0	0	53,689	0.06%
wuppertalprod	496	1,671,938	717,084	0	2,389,518	2.59%
Total	3,664,890	78,227,454	9,828,028	396,968	92,117,340	
Percentage	3.98%	84.92%	10.67%	0.43%		

[Click here for a CSV dump of this table](#)
[Click here for an Extended CSV dump of this table](#)
[Click here for XML encoded data](#)

- NGI_HR
- NGI_HU
- NGI_IBERGRID
- NGI_IL
- NGI_IT
- NGI_MARGI
- NGI_MD
- NGI_ME
- NGI_NDGF
- NGI_NL
- NGI_PL
- NGI_RO
- NGI_SI
- NGI_SK
- NGI_TR
- NGI_UA
- NGI_UK
 - GridIreland
 - LondonT2
 - UKI-LT2-Brunei
 - UKI-LT2-IC-HEP
 - UKI-LT2-QMUL

accounting-devel.egi.eu/show.php?ExecutingSite=UKI-NORTHGRID-MAN-HEP&query=sum_normcpu&startYear=2014&startMonth=12&endYear=2014&endMonth=12

EGI ACCOUNTING PORTAL 

GLOBAL View | VO MANAGER View | VO MEMBER View | SITE ADMIN View | REPORTS | METRICS PORTAL | LINKS

Hierarchical Tree **Production**

- Tier1
- Tier2
- Countries
- EMI3
 - AfricaArabia
 - AsiaPacific
 - CERN
 - EGI.eu
 - IDGF
 - NGI_AEGIS
 - NGI_ARMGRID
 - NGI_BA
 - NGI_BG
 - NGI_BY
 - NGI_CH
 - NGI_CHINA
 - NGI_CYGRID
 - NGI_CZ
 - NGI_DE
 - NGI_FI
 - NGI_FRANCE
 - NGI_GE
 - NGI_GRNET
 - NGI_HR
 - NGI_HU
 - NGI_IBERGRID
 - NGI_IL
 - NGI_IT
 - NGI_MARGI
 - NGI_MD

Data to graph:	Sum Normalised CPU time	Sum CPU time
Period:	Start year: 2014	Start month: 12
	End year: 2014	End month: 12
Groupings:	Show data for: Submitting Host	as a function of: Number of processors
VO Groups:	<input type="radio"/> LHC <input type="radio"/> TOP 10 <input checked="" type="radio"/> ALL <input type="radio"/> Custom <input type="checkbox"/> Group the rest of VOs in a new category	
VOs:	<input type="checkbox"/> atlas <input type="checkbox"/> biomed <input type="checkbox"/> cms <input type="checkbox"/> dteam <input type="checkbox"/> gridpp <input type="checkbox"/> hone <input type="checkbox"/> icecube <input type="checkbox"/> ilc <input type="checkbox"/> lhcb <input type="checkbox"/> ops <input type="checkbox"/> pheno <input type="checkbox"/> t2k.org <input type="checkbox"/> vo.northgrid.ac.uk	
Chart:	Type: GROUP BAR	Scale: LINEAR
dteam VO:	<input type="checkbox"/> Exclude dteam and ops VOs jobs information	
Local Jobs:	<input checked="" type="radio"/> Grid Jobs Only <input type="radio"/> Grid Jobs and Local Jobs <input type="radio"/> Local Jobs Only	

[Refresh](#)

UKI-NORTHGRID-MAN-HEP by SubmitHost and NUMBER PROCESSORS.
ALL VOs. December 2014 - December 2014.

The following table shows the distribution of grouped by SubmitHost and NUMBER PROCESSORS.

by SubmitHost and NUMBER PROCESSORS					
SubmitHost	1	8	Total	%	
ce01.tier2.hep.manchester.ac.uk:8443/cream-pbs-gpu	0	0	0	0	0.00%
ce01.tier2.hep.manchester.ac.uk:8443/cream-pbs-long	9,587,406,356	0	9,587,406,356	26.32%	
ce01.tier2.hep.manchester.ac.uk:8443/cream-pbs-mcore	0	36,527,543	36,527,543	0.10%	
ce02.tier2.hep.manchester.ac.uk:8443/cream-pbs-long	9,583,931,620	0	9,583,931,620	26.31%	
ce02.tier2.hep.manchester.ac.uk:8443/cream-pbs-mcore	0	32,457,670	32,457,670	0.09%	
ce03.tier2.hep.manchester.ac.uk:8443/cream-pbs-long	15,913,202,744	0	15,913,202,744	43.69%	
vac01.tier2.hep.manchester.ac.uk/vac-cmsprod	1,035	0	1,035	0.00%	
vac01.tier2.hep.manchester.ac.uk/vac-gridpp	5,637	0	5,637	0.00%	
vac01.tier2.hep.manchester.ac.uk/vac-lhcbprod	53,145,849	0	53,145,849	0.15%	
vac02.tier2.hep.manchester.ac.uk/vac-atlasprod	97,688,774	0	97,688,774	0.27%	
vac02.tier2.hep.manchester.ac.uk/vac-cmsprod	901,261	0	901,261	0.00%	
vac02.tier2.hep.manchester.ac.uk/vac-gridpp	699,230	0	699,230	0.00%	
vac02.tier2.hep.manchester.ac.uk/vac-lhcbprod	1,088,653,174	0	1,088,653,174	2.99%	
vm3.tier2.hep.manchester.ac.uk:8443/cream-pbs-long	29,663,016	0	29,663,016	0.08%	
Total	36,355,298,696	68,985,213	36,424,283,909		
Percentage	99.81%	0.19%			

[Click here for a CSV dump of this table](#)

http://accounting-devel.egi.eu/show.php?ExecutingSite=UKI-NORTHGRID-MAN-HEP&query=sum_normcpu&startYear=2014&startMonth=12&endYear=2014&endMonth=12&yrange=SubmitHost&xrange=NUMBER+PROCESSORS&groupVO=all&chart=GRBAR&scale=LIN&localJobs=onlygridjobs

Name and Shame

- BEgrid-ULB-VUB
- BEIJING-LCG2
- BUDAPEST
- CA-MCGILL-CLUMEQ-T2
- CBPF
- CESGA
- CIEMAT-LCG2
- EELA-UTFSM
- GR-07-UOI-HEPLAB
- HEPHY-UIBK
- Hephy-Vienna
- HG-04-CTI-CEID
- ICN-UNAM
- IFCA-LCG2
- IFIC-LCG2
- IFISC-GRID
- IN-DAE-VECC-02
- INAF-TS
- INDIACMS-TIFR
- INFN-CATANIA
- INFN-LNL-2
- INFN-NAPOLI-CMS
- INFN-PISA
- JP-KEK-CRC-02
- Kharkov-KIPT-LCG2
- KR-KISTI-GSDC-01
- KR-KNU-T3
- LCG_KNU
- LIP-Coimbra
- LIP-Lisbon
- NCG-INGRID-PT
- NCP-LCG2
- NIHAM
- RO-11-NIPNE
- RO-14-ITIM
- RO-16-UAIC
- RRC-KI
- Ru-Troitsk-INR-LCG2
- SFU-LCG2
- T2-TH-ALICE-NSTDA
- T2-TH-CUNSTDA
- T2-TH-SUT
- T3_HU_Debrecen
- TH-NECTEC-LSR
- TOKYO-LCG2
- TR-03-METU
- TR-10-ULAKBIM
- TW-NCUHEP
- UA-BITP
- UB-LCG2
- UKI-LT2-UCL-HEP
- UKI-SOUTHGRID-BHAM-HEP
- UNI-SIEGEN-HEP
- UPorto
- USC-LCG2
- WUT

What else does WLCG Need?

- MB and VOs can drill down into countries to see which sites are not yet publishing
- Remind all sites to change all of their CEs, not just multicore queues.
- How to extract data for WLCG Reports.