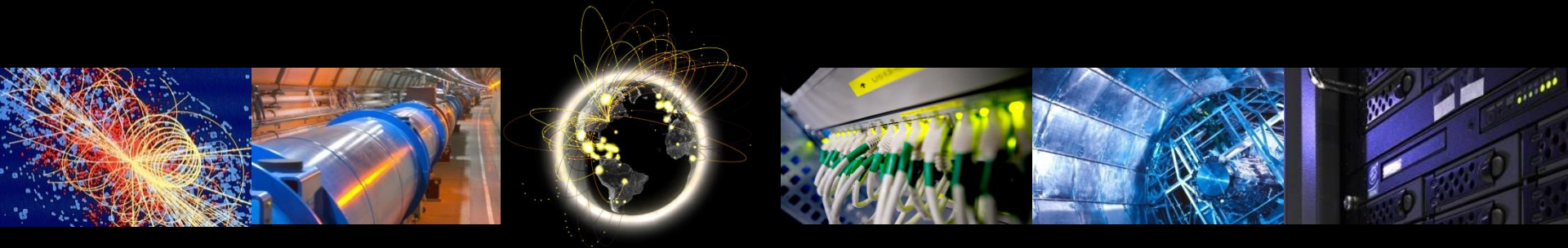# Accounting Update

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Scientific Computing Department, APEL Team

GDB 10th December 2014

Outline

- Batch Systems

- Multicore

- Server Plans

- Cloud Accounting

WLCG
Worldwide LHC Computing Grid

Batch Systems

- The batch systems working group formed in March hasn't been very active
  - Perhaps we didn't drive it hard enough.
- A few useful things have come out though.
  - Improvements to GridEngine parser
  - HTCondor parser
  - Epoch dates
  - Scheduling Problems

GridEngine Parser

Pablo Orviz of IFCA modified the GridEngine APEL parser.

Motivation

- GridEngine scheduler lacks of a built-in solution for normalizing CPU accounting

Operation

- APEL parser has been extended to consider hetereogenity within the farm

- By mimicking PBS normalization mechanism i.e. via multiplication factors

- Accomplished by (manually) setting <cpumult> and <wallmult> attributes in the node's definition

- The parser collects the multiplier data and computes the cpu and wallclock values for each accounting record

Outcome

- Obtains fine-grained accounting of CPU utilization

- Compatible with current open source and commercial versions

- Expect release in February 2015

- Issues remain: GE does not report number of nodes; Newest version logs milliseconds rather than seconds.

HTCondor Parser

- Pavel Demin of Louvain wrote an APEL parser for HTCondor
  - Now Condor can be used with CREAM. It is currently often used with ARC CE.
- This parser does not directly parse the Condor log files but instead it uses the condor_history command and its -format flag to output all the needed values in a kind of CSV format that can be read by the new parsing framework.
- Pavel said "I was really amazed with how well-organized the new python based parsing framework is and how adding a new parser is a lot easier than in the older java based parsing framework".
- Still needs some work to make it consistent with other APEL parsers.
- This should be released in February 2015

Epoch Dates

- Batch systems can return strange date values in certain circumstances
- One example is when a job fails to be scheduled. When it gives up, the batch system logs an EndTime although it never logged a StartTime. APEL was checking for a valid EndTime but missed that the StartTime was null. LSF calculates the WallDuration as EndTime-StartTime. This resulted in jobs with >40 years wallclock.
  - Site removed jobs – they had no cputime recorded. APEL will trap them in a future release.
  - A number of other sites were observed with 1970 StartTimes but with correct WallDuration
- There are more common circumstances when APEL finds a 1970 EndTime. In EMI2 these were passed on by the client but rejected by the APEL server, resulting in small sync errors. The EMI3 client is better at trapping these resulting in better sync tests.

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Scheduling Problems

The StartTime problem was due to pathological scheduling.

A similar example with LoadLeveller where the scheduler pre-empted a low priority job many times. By the end of the job almost every node on the cluster had been used so the accounting of the number of nodes looked like a very parallel job.

Still investigating whether this can be trapped.

Multicore

- [Accounting of Multicore jobs requires publishing to the EMI3 APEL database.](#) Almost all EGI sites have now migrated to EMI3 accounting clients. Only a few insignificant stragglers left.

- There are several ways of publishing:
  - The apel client parsers gathers data on number of cpus and cores from the batch systems (except GE) provided an option is switched on. **This option is off by default so multicore sites need reminding to turn it on**. If they want to backdate their publishing they will need to re parse their batch logs.
  - 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 aim to have it done by Xmas.
  - NIKHEF who publish from their own accounting database are currently testing SSM2.
  - CERN who publish from their own accounting database, hope to have migrated this year.
  - Italian sites have all(?) migrated from DGAS to use the standard APEL client so they (can) now publish cores.
  - There are other middleware flavours but probably not of interest to WLCG.

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Portal Multicore View

- http://accounting-devel.egi.eu/show.php?ExecutingSite=UKI-NORTHGRID-MAN-HEP&query=njobs&startYear=2014&startMonth=8&endYear=2014&endMonth=10&yrange=SubmitHost&xrange=NUMBER+PROCESSORS&groupVO=all&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 (see previous slide).

- Views include Wallclock and Wallclock*ncores

- Efficiency based on Wallclock*ncores
  - But the calculation needs careful checking

- Feedback sought on how this data is displayed.

- Once everyone is publishing then this portal view will be complete and it can populate its own T1 and T2 reports too.

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EGI ACCOUNTING PORTAL

CESGA

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

Refresh

by REGION and NUMBER PROCESSORS.
LHC VOs. November 2014 - December 2014.

7% cputime >1 core

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

REGION	1	2	3	4	6	8	12	16	Total	%
AfricaArabia	3,135,400,277	0	0	0	0	0	0	0	3,135,400,277	0.19%
AsiaPacific	9,559,887,557	0	0	0	0	0	0	0	9,559,887,557	0.57%
NGI_AEGIS	1,872	0	0	0	0	0	0	0	1,872	0.00%
NGI_BG	260	0	0	0	0	0	0	0	260	0.00%
NGI_CH	323,909,005	0	0	0	0	4,316,924,418	0	2,757,533,991	7,398,367,414	0.44%
NGI_CHINA	10,377,492,679	0	0	0	0	0	0	0	10,377,492,679	0.62%
NGI_CZ	48,903,464,929	0	0	0	0	0	0	0	48,903,464,929	2.92%
NGI_DE	231,010,123,756	0	0	0	0	6,812,892,822	0	0	237,823,016,578	14.19%
NGI_FRANCE	228,269,556,589	0	0	0	0	9,780,722,955	0	0	238,050,279,544	14.20%
NGI_GRNET	911,957,817	0	0	0	0	0	0	0	911,957,817	0.05%
NGI_HR	117,034	0	0	0	0	0	0	0	117,034	0.00%
NGI_HU	16,067,188,751	0	0	0	0	0	0	0	16,067,188,751	0.96%
NGI_IBERGRID	92,430,141,608	0	0	0	0	14,174,950,044	0	0	106,605,091,652	6.36%
NGI_IL	13,256,170,842	0	0	0	0	0	0	0	13,256,170,842	0.79%
NGI_IT	297,388,742,337	3,958,094	0	0	0	15,845,180,366	0	0	313,237,880,797	18.69%
NGI_MD	12	0	0	0	0	0	0	0	12	0.00%
NGI_NDGF	19,868,484	1,224	255	0	0	4,629,677	0	0	24,499,640	0.00%
NGI_NL	57,521,664,676	0	0	0	0	0	0	0	57,521,664,676	3.43%
NGI_PL	1,017,801,351	0	0	0	0	0	0	0	1,017,801,351	0.06%
NGI_RO	15,259,390,135	0	0	0	0	1,399,605,798	0	0	16,658,995,933	0.99%
NGI_SI	3,391,317,774	0	0	0	0	11,410,604,628	0	0	14,801,922,402	0.88%
NGI_SK	30,021,128,655	0	0	0	0	0	0	0	30,021,128,655	1.79%
NGI_TR	1,994,372,921	0	0	0	0	0	0	0	1,994,372,921	0.12%
NGI_UA	7,248,705,187	0	0	0	0	0	0	0	7,248,705,187	0.43%
NGI_UK	208,376,081,872	0	0	0	0	35,632,072,197	0	0	244,008,154,069	14.56%
ROC_Canada	28,194,717,748	0	0	0	10,439,375,218	6,833,074,723	0	0	45,467,167,689	2.71%
ROC_LA	59,354,534,307	0	0	0	0	0	0	0	59,354,534,307	3.54%
Russia	178,620,421,959	0	0	0	0	43,573,435	14,259,214,439	0	192,923,209,833	11.51%
Total	1,542,654,160,394	3,959,318	255	0	10,439,375,218	106,254,231,063	14,259,214,439	2,757,533,991	1,676,368,474,678	
Percentage	92.02%	0.00%	0.00%	0.00%	0.62%	6.34%	0.85%	0.16%		

Click here for a CSV dump of this table

Click here for a Extended CSV dump of this table

Click here for XML encoded data

EGI ACCOUNTING PORTAL

accounting-devel.egi.eu/show.php?SubRegion=1.65&query=sum_normcpu&startYear=2014&startMonth=11&endYear=2014&endMonth=12&

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

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

Refresh

by SITE and NUMBER PROCESSORS.
LHC VOs. November 2014 - December 2014.

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

SITE	1	8	Total	%
EFDA-JET	202,038	0	202,038	0.00%
RAL-LCG2	434,603,836	17,785,171,943	18,219,775,779	4.46%
UKI-LT2-Brunel	27,410,454,068	0	27,410,454,068	6.71%
UKI-LT2-IC-HEP	14,945,783,229	361,706,274	15,307,489,503	3.75%
UKI-LT2-QMUL	38,101,386,652	5,237,142,216	43,338,528,868	10.61%
UKI-LT2-RHUL	38,397,987,757	0	38,397,987,757	9.40%
UKI-LT2-UCL-HEP	1,383,126,679	0	1,383,126,679	0.34%
UKI-NORTHGRID-LANCS-HEP	26,380,136,808	4,962,265,214	31,342,402,022	7.67%
UKI-NORTHGRID-LIV-HEP	7,643,600,050	3,160,841,480	10,804,441,530	2.65%
UKI-NORTHGRID-MAN-HEP	62,786,773,360	1,029,832,683	63,816,606,043	15.62%
UKI-NORTHGRID-SHEF-HEP	12,488,349,952	0	12,488,349,952	3.06%
UKI-SCOTGRID-DURHAM	7,545,707	0	7,545,707	0.00%
UKI-SCOTGRID-ECDF	6,052,346,305	0	6,052,346,305	1.48%
UKI-SCOTGRID-GLASGOW	29,186,445,741	1,586,766,120	30,773,211,861	7.53%
UKI-SOUTHGRID-BHAM-HEP	25,001,353,740	0	25,001,353,740	6.12%
UKI-SOUTHGRID-BRIS-HEP	4,690,340,304	0	4,690,340,304	1.15%
UKI-SOUTHGRID-CAM-HEP	7,868,202,622	78,614,015	7,946,816,637	1.95%
UKI-SOUTHGRID-OX-HEP	10,893,158,893	831,400,956	11,724,559,849	2.87%
UKI-SOUTHGRID-RALPP	59,148,280,981	598,331,296	59,746,612,277	14.63%
Total	372,820,078,722	35,632,072,197	408,452,150,919	
Percentage	91.28%	8.72%		

Click here for a CSV dump of this table
Click here for a Extended CSV dump of this table
Click here for XML encoded data

EGI ACCOUNTING PORTAL

CESGA

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
  - ▷ NGI_ME
  - ▷ NGI_NDGF

Data to graph:	Sum Normalised CPU time ▼	Sum CPU time
Period:	Start year: 2014 ▼ Start month: 11 ▼	End year: 2014 ▼ End month: 12 ▼
Groupings:	Show data for: Submitting Host ▼	as a function of: Number of processors ▼
VO Groups:	◉ LHC ○ TOP 10 ○ ALL ○ Custom ☐ Group the rest of VOs in a new category	
VOs:	☐ alice ☐ atlas ☐ biomed ☐ cms ☐ dteam ☐ enmr.eu ☐ epic.vo.gridpp.ac.uk ☐ esr ☐ fusion ☐ geant4 ☐ glast.org ☐ hone ☐ hyperk.org ☐ ilc ☐ lhcb ☐ mice ☐ na62.vo.gridpp.ac.uk ☐ ngs.ac.uk ☐ None ☐ ops ☐ pheno ☐ snoplus.snolab.ca ☐ t2k.org ☐ zeus	
Chart:	Type: GROUP BAR ▼	Scale: LINEAR ▼
dteam VO:	☐ Exclude dteam and ops VOs jobs information	
Local Jobs:	◉ Grid Jobs Only ○ Grid Jobs and Local Jobs ○ Local Jobs Only	

Refresh

RAL-LCG2 by SubmitHost and NUMBER PROCESSORS.
LHC VOs. November 2014 - December 2014.

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

SubmitHost	1	8	Total	%
cream-ce01.gridpp.rl.ac.uk:8443/cream-condor-grid3000M	239,077,906	0	239,077,906	0.13%
cream-ce01.gridpp.rl.ac.uk:8443/cream-condor-grid4000M	1,499	0	1,499	0.00%
cream-ce02.gridpp.rl.ac.uk:8443/cream-condor-grid3000M	195,524,327	0	195,524,327	0.11%
cream-ce02.gridpp.rl.ac.uk:8443/cream-condor-grid4000M	104	0	104	0.00%
gsiftp://arc-ce01.gridpp.rl.ac.uk:2811/jobs	55,047,822,678	12,642,313,375	67,690,136,053	37.93%
gsiftp://arc-ce02.gridpp.rl.ac.uk:2811/jobs	46,364,417,517	2,580,436,992	48,944,854,509	27.43%
gsiftp://arc-ce03.gridpp.rl.ac.uk:2811/jobs	58,805,383,690	2,562,421,576	61,367,805,266	34.39%
gsiftp://arc-ce04.gridpp.rl.ac.uk:2811/jobs	0	0	0	0.00%
Total	160,652,227,721	17,785,171,943	178,437,399,664	
Percentage	90.03%	9.97%		

Click here for a CSV dump of this table
Click here for a Extended CSV dump of this table
Click here for XML encoded data

Service Plans

- Once all sites have migrated to EMI3 or equivalent then the EMI2 database which publishes to the production accounting portal will be closed down.

- Historic data will be moved into EMI3 database and the portal will take its feed from that (like the dev portal now)

- Pub and Sync Tests need rewriting for the new database.

- All of this is straightforward work but will need careful planning and testing.

- Unlikely to be before March. Until then the dev portal view will be the prime source of multicore data and efficiency information.

Cloud Accounting

- Accounting scripts are available for OpenStack, OpenNebula, and Synnefo
- They gather accounting data from the local VM database, cut accounting records, and publish using SSM to APEL
  - Patches to both OS and ON scripts recently to fix bugs and add image info.
  - New versions being rolled out now.
- ON: https://appdb.egi.eu/store/software/oneacct.export/releases/0.2.x/
- OS (Older script): https://github.com/EGI-FCTF/osssm
- OS (New script in development/poor documentation): https://github.com/alvarolopez/caso
- Accounting Portal has a simple cloud view
- http://accounting-devel.egi.eu/cloud.php?query=vm_num&startYear=2014&startMonth=1&endYear=2014&endMonth=12&yrange=SITE&xrange=DATE
- VO view under test
- Tree view soon
- Current view shows all sites which publish
- EGI likely to want a Certified FedCloud view
- Could have an overlapping WLCG Cloud view too.

EGI ACCOUNTING PORTAL

CESGA

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

Hierarchical Tree

- Tier1
- Tier2
- Countries
- EMI3
- EGI
  - 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
  - NGI_ME
  - NGI_NDGF
  - NGI_NL
  - NGI_PL
  - NGI_RO
  - NGI_SI

Cloud View --> Production

Data to graph:	Number of VMs ▼	Total number of VM run
Period:	Start year: 2014 ▼	Start month: 1 ▼	End year: 2014 ▼	End month: 12 ▼
Groupings:	Show data for: SITE ▼	as a function of: VO ▼

Refresh

Total number of VM run by SITE and DATE.

The following table shows the distribution of Total number of VM run grouped by SITE and DATE.

SITE	Jan 2014	Feb 2014	Mar 2014	Apr 2014	May 2014	Jun 2014	Jul 2014	Aug 2014	Sep 2014	Oct 2014	Nov 2014	Dec 2014	Total	%
'HG-09-Okeanos-Cloud'	0	0	0	1	0	0	0	0	0	0	0	0	1	0.00%
100IT	680	585	465	534	746	654	746	509	226	733	716	73	6,667	2.30%
BIFI	373	2	2	105	123	71	98	472	310	2,596	3,341	18	7,511	2.59%
CERN-PROD	5	15	9	15	17,231	13,279	3,016	8,254	49,870	47,207	13,303	0	152,204	52.41%
CESGA	1,059	744	774	1,331	906	1,044	948	778	829	844	758	57	10,072	3.47%
CESNET	858	626	65	1	0	0	0	0	0	0	0	0	1,550	0.53%
CESNET-MetaCloud	718	625	883	851	1,079	892	764	768	799	811	1,475	101	9,766	3.36%
CETA-CIEMAT	0	0	0	0	0	0	3	0	0	0	0	0	3	0.00%
CETA-GRID	0	0	0	0	0	0	138	705	670	566	0	3	2,082	0.72%
CYFRONET-CLOUD	0	0	0	24	739	186	0	3	0	199	228	0	1,379	0.47%
FZJ	778	59	421	721	751	663	682	1	177	1,658	1,997	537	8,445	2.91%
GoeGrid	655	713	788	458	667	1,427	750	621	730	760	753	44	8,366	2.88%
GWDG	2	2	2	139	207	0	0	0	0	0	0	0	352	0.12%
HG-09-Okeanos-Cloud	7	3	3	22	325	530	368	465	107	567	493	0	2,890	1.00%
IFCA-LCG2	333	593	766	486	723	581	777	1,912	263	3,661	2,081	0	12,176	4.19%
IISAS-FedCloud	12	2	275	690	322	15	0	0	1	77	2,857	1,046	5,297	1.82%
INFN-CATANIA-NEBULA	39	2	1,339	1,320	1,377	949	2,071	1,669	1,631	1,627	1,342	85	13,451	4.63%
INFN-CATANIA-STACK	0	24	717	776	766	771	757	764	762	757	110	2	6,206	2.14%
INFN-PADOVA-STACK	0	0	0	0	254	677	846	758	237	0	2,578	41	5,391	1.86%
KISTI	0	0	0	0	0	0	0	0	23	0	12	0	35	0.01%
KTH-CLOUD	751	678	563	737	815	578	107	811	795	804	778	10	7,427	2.56%
MK-04-FINKICLOUD	0	0	0	0	501	0	253	60	685	748	228	0	2,475	0.85%
NCG-INGRID-PT	0	0	0	0	0	0	0	0	0	13	626	56	695	0.24%
PRISMA-INFN-BARI	387	180	625	634	631	740	591	18	2,014	4,743	2,454	66	13,083	4.50%
SZTAKI	0	0	2	445	1,190	775	1,036	1,556	875	982	551	81	7,493	2.58%
TR-FC1-ULAKBIM	0	0	0	153	1,146	567	693	273	57	210	187	2	3,288	1.13%
UPV-GRYCAP	0	0	0	0	0	0	46	677	733	670	0	0	2,126	0.73%
Total	6,657	4,853	7,699	9,443	30,499	24,399	14,690	21,074	61,794	70,233	36,868	2,222	290,431	
Percentage	2.29%	1.67%	2.65%	3.25%	10.50%	8.40%	5.06%	7.26%	21.28%	24.18%	12.69%	0.77%		

Click here for XML encoded data

accounting-devel.egi.eu/cloud.php?query=vm_num&startYear=2014&startMonth=1&endYear=2014&endMonth=12&yrange=SITE&xrange=VO

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

- 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
- NGI_ME
- NGI_NDGF
- NGI_NL
- NGI_PL
- NGI_RO
- NGI_SI
- NGI_SK
- NGI_TR
- NGI_UA
- NGI_UK
- ROC_Canada
- ROC_LA
- Russia
- OSG
- UNREGISTERED
- VO_Discipline

The following table shows the distribution of Total number of VM run grouped by SITE and VO.

Total number of VM run by SITE and VO

SITE	None	ops	fedcloud.egi.eu	ALICE	ATLAS	CMS	LHCb	demo.fedcloud.egi.eu	egi	highthroughputseq.egi.eu	peachnote.com	ops.vo.ibergrid.eu	vo.lifewatch.eu	dteam	enmr.eu	Total	%
'HG-09-Okeanos-Cloud'	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.00%
100IT	5,126	1,541	0	0	0	0	0	0	0	0	0	0	0	0	0	6,667	2.30%
BIFI	7,324	184	3	0	0	0	0	0	0	0	0	0	0	0	0	7,511	2.59%
CERN-PROD	19,390	0	0	47	14,081	7,465	111,221	0	0	0	0	0	0	0	0	152,204	52.41%
CESGA	732	8,215	1,069	0	0	0	0	10	46	0	0	0	0	0	0	10,072	3.47%
CESNET	1,550	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,550	0.53%
CESNET-MetaCloud	346	8,168	1,141	0	0	0	0	10	0	2	99	0	0	0	0	9,766	3.36%
CETA-CIEMAT	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.00%
CETA-GRID	2,079	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2,082	0.72%
CYFRONET-CLOUD	949	424	6	0	0	0	0	0	0	0	0	0	0	0	0	1,379	0.47%
FZJ	698	4,881	2,358	0	508	0	0	0	0	0	0	0	0	0	0	8,445	2.91%
GoeGrid	842	5,137	2,372	0	0	0	0	0	0	0	15	0	0	0	0	8,366	2.88%
GWDG	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	352	0.12%
HG-09-Okeanos-Cloud	2,890	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,890	1.00%
IFCA-LCG2	2,397	3,619	6,082	0	0	20	0	25	0	0	0	23	10	0	0	12,176	4.19%
IISAS-FedCloud	1,301	664	2,366	0	965	0	0	0	0	0	0	0	0	1	0	5,297	1.82%
INFN-CATANIA-NEBULA	6,904	5,614	933	0	0	0	0	0	0	0	0	0	0	0	0	13,451	4.63%
INFN-CATANIA-STACK	6,206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,206	2.14%
INFN-PADOVA-STACK	941	2,153	2,244	0	0	0	0	0	0	0	0	0	1	52	0	5,391	1.86%
KISTI	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	0.01%
KTH-CLOUD	7,427	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,427	2.56%
MK-04-FINKICLOUD	2,475	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,475	0.85%
NCG-INGRID-PT	695	0	0	0	0	0	0	0	0	0	0	0	0	0	0	695	0.24%
PRISMA-INFN-BARI	3,803	1,381	7,899	0	0	0	0	0	0	0	0	0	0	0	0	13,083	4.50%
SZTAKI	7,493	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,493	2.58%
TR-FC1-ULAKBIM	3,288	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,288	1.13%
UPV-GRYCAP	0	2,111	9	0	0	0	0	0	0	0	0	0	0	0	6	2,126	0.73%
Total	85,247	44,093	26,484	47	15,554	7,485	111,221	45	46	17	99	23	10	2	52	6	290,431	
Percentage	29.35%	15.18%	9.12%	0.02%	5.36%	2.58%	38.30%	0.02%	0.02%	0.01%	0.03%	0.01%	0.00%	0.00%	0.02%	0.00%		

Click here for XML encoded data

Cloud Usage Record

- ## Current Cloud UR
    - https://wiki.egi.eu/wiki/Fedcloud-tf:WorkGroups:Scenario4#Cloud_Accounting_Usage_Record

- ## Revision proposed (on agenda)
    - Granularity below Site **CloudComputeService**
        - like CE in Grid
    - Benchmark (type and value)
    - IP numbers (number of public IP addresses)
    - Image name from a MarketPlace (EGI AppDB, vmcatcher)

- ## Hope to agree soon and deploy (in database, then providers)

Cloud Issues

- Benchmarking – always provokes discussion.
  - Taken fieldnames from OGF UR v2. Supports multiple benchmarks
  - Need to decide what to use
  - Normalising by any estimate is better than not.
  - The HEP model of long running, stable VMs using the hardware efficiently makes VM benchmarking feasible

- Long-running VMs
  - Cloud records are summarised by month like grid job.
  - Grid jobs assigned to month in which they end so not completely accurate but number spanning months is small and probably cancels out.
  - VMs could/will run for many months so there is a requirement to assign their usage to the correct month. Not only to issue interim bills.
  - Current model is to cut a UR for running jobs so usage to date is known but each record overwrites the previous one so one loses the detail.
  - Alternative to have each record show the usage since last one. Could sum all records for a VM to get total use but also summarise records by date to get the time(etc) used in each month.
  - Still under discussion. Needs a firm proposal soon

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Summary

- New APEL parsers
- Check out your multicore reporting
  - Set parallel flag if not there
- Start Publishing Cloud

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