WLCG Accounting Task Force Update

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GDB
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Main objectives of the task force

- To have by the end of August :
  - EGI accounting portal with a dedicated WLCG view which contains all necessary information in a table and/or graph form available also through APIs. Should be bug-free and user-friendly
  - Data exposed through the portal should be correct. We should have in place an automatic data validation procedure, which would allow us to detect eventual problems with data publishing or/and processing
  - The accounting reports with an agreed content should be generated by the EGI portal. This might be possible to do on demand for any given time range with monthly granularity.

Progress so far

- Validation of data in the accounting portal by comparing data in the accounting portal with experiment-specific accounting system (more details later in this talk)

- Following up on the detected discrepancies

- Ongoing work on understanding and documenting of all kind of transformations of the accounting data at all levels (site, APEL, experiment-specific systems, EGI portal)

- Testing and validation of the new version of the EGI accounting portal (demo today).

First results of data validation (1)

Experiment	Performed comparison scaled/raw wall clock multiplied by number of cores	Agreement EGI/Experiment	Performed comparison normalized (HS06) wall clock multiplied by number of cores	Agreement EGI/Experiment	Comment
ATLAS	YES	~105%	YES	95%	Using ATLAS Dashboard API
ALICE	YES	~104%	NO	-	Normalized metrics are not available
CMS	YES	~132% **Has to be redone using another information source**	YES	~132% **Has to be redone using another information source**	Using CMS Dashboard API **Has to be redone using another information source**
LHCb	NOT	-	NOT	-	Waiting for API or data extraction from DIRAC

First results of data validation (2)

- We do not compare exactly the same thing.

  - -Experiment systems measure real payloads, APEL measures pilots, therefore EGI should have slightly higher numbers

  - -We do not always have raw wall clock in APEL, since some batch system rather report scaled wall clock. However in this case normalized metrics should still agree (RAL, Prague)

- Agreement we see so far for ATLAS and ALICE is pretty good and we can conclude that overall accounting data is reliable

- However we detected quite some problems with certain sites which have to be followed up and fixed

First results of data validation ATLAS and ALICE

- **Cases to be investigated:**
  - EGI usage is much lower (more than 30-40%) both in terms of raw and normalized metrics compared to the experiment systems
  - EGI usage is several times higher both in terms of raw and normalized metrics compared to the experiment systems
  - Big discrepancy for normalized metric, while raw metric does agree

- **Most striking discrepancies for ATLAS are already understood**

- **Enabling automatic publishing of the comparison results to SSB**

First results of data validation for CMS

- Substantial difference in CPU/wall clock metrics in case of CMS are being investigated
- One of the reasons of the discrepancy is the problem which has been introduced in the WMAgent code which performs reporting to Dashboard. Only production jobs were affected. However, unless the fix is applied to all production workflows, Dashboard accounting data can not be used for comparison
- Working with CMS in order to use an alternative information source which might become available this month
- Either with an alternative information source which will also provide pilot consumption or using Dashboard when all production flows are again reporting correctly, the CMS comparison exercise needs to be performed on the new statistics
- Another reason for discrepancy is the deployment of the new pilot model based on dynamic partitionable pilots. CMS has been deploying a new pilot model to T1 (2015) and the major fraction of T2 (Spring 2016) resources in anticipation to multithreaded application jobs. A single type of multicore pilot with internal scheduling mechanism is used to allocate and run a diversity of payloads (single core, multicore, high memory, etc).
- Pilot wallclock consumption difference with respect to that of the sum of payloads varies with payload composition. During the first half of 2016, when multicore pilots have been used primarily to run multiple single-core payloads simultaneously, the difference is estimated to be of ~10%

Accounting @ CERN

- New accounting system is being tested at CERN
  - Uses Apache Spark to process LSF, HTCondor, Openstack and external (public) cloud records.
  - It generates summary records, not individual job records.
  - Currently testing sending job summaries to APEL (SSM).
  - Will move to production once tests are completed (for July data?).

Slide prepared by Miguel Coelho dos Santos

Experiment needs for scrutiny report preparation

Based on input from ATLAS and CMS

- The following metrics are required both by ATLAS and CMS : for T1 and T2 sites normalized wall clock multiplied by number of cores and normalized CPU. They are taken either from the portal or from the monthly accounting reports. ATLAS would like to have these metrics also with daily granularity

- For T0 ATLAS needs normalized wall clock multiplied by number of cores and normalized CPU. CMS for T0, CAF and HLT farm currently uses Dashboard

- For 'Total used' disk and tape info, ATLAS uses Dashboard. CMS on the contrary takes this information from the monthly accounting reports

- Pledges are taken from REBUS

- ATLAS requires as reliable as possible average HS06/core slot at the level of the site, which is also taken from REBUS

Common requirements

- All WLCG-related information should be collected under a single entry point, not being scattered across different pages which sometime are not consistent
- Only metrics, tables and plots which make sense for WLCG should be exposed in the WLCG view
- Data reliability is the main requirement

From the conclusions of the CMS presentation at the task force meeting:

WLCG should minimize having accounting pages with not accurate or conflicting information

- Many plots are shown to funding agencies
- CRSG rely on these tools – they should be full clear and consistent

We need to work towards minimizing the complexity of the whole resource accounting system and checking the reliability of the data

Testing & validation of the new portal

- Next WLCG Accounting Task Force meeting will be dedicated to the new portal validation

- Overall, the latest version of the portal is a big improvement compared to the previous one

- Feedback is being collected on the twiki page
  https://twiki.cern.ch/twiki/bin/view/LCG/NewAccountingPortalTesting