



Short introduction to the discussion about accounting of the resources provided through cloud interfaces

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CPU accounting various perspectives (no clouds)

- User-level accounting. Is covered by the experiment specific systems. The accounting instance in this case is a payload job, not a pilot.
- Batch system accounting. Is covered by APEL. The accounting instance in this case is a pilot job.
- Though having different information sources and operating with different accounting instances both systems should roughly agree in terms of CPU and wallclock time
- APEL accounting is mainly used for the funding agencies in order to prove that commitment to support WLCG is fulfilled
- Experiment specific accounting is used for operations and everyday work

CPU accounting various perspectives (with clouds)

When cloud resources are used we deal with a different mechanism of job instantiation and often VM becomes an accounting instance.

When pledged resources are provided through cloud interfaces, we still need to account them in APEL to demonstrate how/whether MoU commitments are fulfilled

On the other hand LHC experiments want to account also opportunistic resources. Some of them can be provided in the future by the commercial clouds. In this case we deal with one more type of accounting “**resource provider accounting**”

User-level accounting not necessary agrees with resource provider accounting. If you asked for a resource instance (VM), but did not use it, you still need to pay for it. The question here is WHY you were not able to use a resource? Your fault or resource provider fault?

See more details in this presentation:

http://indico.cern.ch/event/319748/contribution/10/attachments/616091/847730/HelixNebula_Production_giordano_GDB.pdf

CPU accounting with clouds

- As was demonstrated during the cloud procurement exercise, in order to ensure efficient use of any type of available resources, all types of accounting and possibilities to crosscheck information between them is important.
- One of the most difficult tasks for the cloud accounting and in particular for the resources provided by commercial clouds is benchmarking.
- Accounting and benchmarking activities need to be in a close loop, progress in accounting not possible without progress in benchmarking

WLCG resource reporting task force

- The mission of the task force was to ensure that cloud resources can be reported and hence counted towards pledges
- The work was inline with APEL cloud accounting work with the following workflow:
 - Publisher extracts the required information from the cloud resource
 - Includes a HEP-SPEC-06 normalization factor
 - Sends the result to the central accounting database
- By the end of the last year the publishers for OpenStack and OpenNebula as well as normalization method became available and cloud accounting data showed up in the EGI accounting portal. The task force was terminated.
- However, looks like there is still a lot of work ahead of us in order to make sure that we can properly account resources of the WLCG sites provided through private clouds. And we might need a dedicated effort before it becomes a routine operations work.
- CERN recent experience will be presented in the next talk.