Accounting for the new benchmark(s)

Adrian Coveney
WLCG Accounting TF, 25 March 2022
Outline

1. Requirements
2. Existing workflow
3. Planned changes
4. Draft message extract
5. Next steps
Requirements

- Support for new benchmark metrics in clients, message formats (job, summary or normalised summary), Repository and Portal alongside the existing benchmarks
- Simplify any future changes in benchmark (including versioning)
- Method to query which sites are publishing the new benchmark (to support decision making on timing of switchover)
- Ability to display consumption depending on the benchmark selected in the Accounting Portal
- WLCG Accounting Utility should be modified to provide comparison of the consumption in both benchmarks
Existing workflow

- Most sites include benchmarks as part of the APEL accounting records (job or summary)
- Many sites only provide final usage × benchmark values in “normalised summaries”
- Benchmarks can be pulled in from BDII's or set manually in local APEL accounting client config
- Sites apply a scaling factor between execute nodes so that they can use a single benchmark per cluster
BDII
Client config

APEL Client

APEL job or summary messages via SSM

ServiceLevelType
ServiceLevel

Normalised Wall Duration
Normalised CPU Duration

OR

Normalised Sum Elapsed
Normalised Sum CPU

Accounting Portal

APEL normalised summary messages via SSM

Central APEL Repository

APEL normalised summary messages

Aggregation

manual_spec1
manual_spec2
...

GLUE_CE_CAPABILITY
GLUE_HOST_BENCHMARK
Planned changes

- Add fields to allow an additional benchmark value and benchmark type to job, summary and normalised summary records and Repository schema
  - Allows direct comparisons to be made between old and new benchmarks if both supplied
  - Requires additional record fields and schema changes
  - Includes changes to accounting clients, Repository and Portal

- Normalised accounting messages to include benchmark type that the records were normalised with

- Method to generate reports on which benchmarks sites are reporting can be added in CRIC
BDII
Client config
APEL Client
Central APEL Repository
Accounting Portal

APEL job or summary messages
APEL normalised summary messages

ServiceLevelType
ServiceLevel
ServiceLevelTypeAlt
ServiceLevelAlt

NormalisedWallDuration
NormalisedCPUDuration
NormalisedWallAltDuration
NormalisedCPUAltDuration

ServiceLevelTypeAlt
ServiceLevelAlt

Normalised Sum Elapsed
Normalised Sum CPU

via SSM
aggregation

ServiceLevelType
ServiceLevel
ServiceLevelTypeAlt
ServiceLevelAlt

Normalised Wall Duration
Normalised CPU Duration
Normalised Wall Alt Duration
Normalised CPU Alt Duration

serviceLevelAltType
Draft message extracts

- Job records (similar in Summaries)
  - Accept an associative array of benchmarks
  - Only read benchmarks we're interested in

APEL-individual-job-message: v0.4
...
ServiceLevel: {HEPSPEC: 11.4, HEP-SCORE2x: 15.3}
%%
...

- Normalised summaries
  - Addition of service level type and alternative duration fields

APEL-summary-job-message: v0.4
...
NormalisedWallDuration: 728033785
NormalisedCPUDuration: 675036676
ServiceLevelType: HEPSPEC
NormalisedWallAltDuration: 620033785
NormalisedCPUAltDuration: 505036676
ServiceLevelAltType: HEP-SCORE2x
%%
...

Next Steps

- Document message format changes
- Set up message queues and exchange test records, which could be done in the next few months
- Find volunteer sites to start testing with
- Core work to APEL client and Repository would take around 6 months
- WLCG Accounting Task Force is coordinating with other parties that might need to make changes
  - ARC
  - HTCondor
  - EGI Accounting Portal
Thank you