Accounting for the new benchmark(s)

Adrian Coveney, Julia Andreeva
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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 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

APEL Client

Client config

manual_spec1
manual_spec2
...

ServiceLevelType
ServiceLevel

NormalisedWallDuration
NormalisedCPUDuration

OR

APEL job or summary messages

via SSM

APEL normalised summary messages

Central APEL Repository

ServiceLevelType
ServiceLevel

NormalisedWallDuration
NormalisedCPUDuration

aggregation

Accounting Portal

Normalised Sum Elapsed
Normalised Sum CPU

APEL normalised summary messages
via SSM
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

ServiceLevel
ServiceLevelType
ServiceLevelAlt

ServiceLevelAltType
NormalisedWallDuration
NormalisedCPUDuration

ServiceLevelTypeAlt
NormalisedWallAltDuration
NormalisedCPUAltDuration
ServiceLevelAltType

OR

APEL job or summary messages

via SSM

APEL normalised summary messages

Central APEL Repository

ServiceLevel
ServiceLevelType
ServiceLevelAlt

NormalisedWallDuration
NormalisedCPUDuration
ServiceLevelType
NormalisedWallAltDuration
NormalisedCPUAltDuration
ServiceLevelAltType

aggregation

Accounting Portal

Normalised Sum Elapsed
Normalised Sum CPU

APEL normalised summary messages
via SSM

NormalisedWallDuration
NormalisedCPUDuration
ServiceLevelType
NormalisedWallAltDuration
NormalisedCPUAltDuration
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
NormalisedCPUAAltDuration: 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