

Benchmarking cloud resources

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Performance measurements and monitoring are essential for the efficient use of computing resources. In a commercial cloud environment an exhaustive resource profiling has additional benefits due to the intrinsic variability of the virtualised environment. In this context resource profiling via synthetic benchmarking quickly allows to identify issues and mitigate them. Ultimately it provides information about the actual delivered performance of invoiced resources.

In the context of its commercial cloud initiatives, CERN has acquired extensive experience in benchmarking commercial cloud resources, including Amazon, Microsoft Azure, IBM, ATOS, T-Systems, the Deutsche Boerse Cloud Exchange. The CERN cloud procurement process has greatly profited of the benchmark measurements to assess the compliance of the bids with the requested technical specifications. During the cloud production activities, the job performance has been compared with the benchmark measurements.

In this report we will discuss the experience acquired and the results collected using several benchmark metrics. Those benchmarks span from generic open-source benchmarks (encoding algorithm and kernel compilers) to experiment specific benchmarks (ATLAS KitValidation) and synthetic benchmarks (Whetstone and random number generators). The workflow put in place to collect and analyse performance metrics will be also described.

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Secondary Keyword (Optional)

Accounting and information

Tertiary Keyword (Optional)

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