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Lightweight site federation for CMS support

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There is a general trend in WLCG towards the federation of resources, aiming for increased simplicity, efficiency, flexibility, and availability. Although general, VO-agnostic federation of resources between two independent and autonomous resource centres may prove arduous, a considerable amount of flexibility in resource sharing can be achieved, in the context of a single WLCG VO, with a relatively simple approach. We have demonstrated this for PIC and CIEMAT, the Spanish Tier-1 and Tier-2 sites for CMS (separated by 600 Kms, ˜10 ms latency), by making use of the existing CMS xrootd federation (AAA) infrastructure and profiting from the common CE/batch technology used by the two centres (HTCondor). This work describes how compute slots are shared between the two sites with transparent and efficient access to the input data irrespective of its location. This approach allows to dynamically increase the capacity of a site with idle execution slots from the remote site. Our contribution also includes measurements for diverse CMS workflows comparing performances between local and remote execution. In addition to enabling an increased flexibility in the use of the resources, this lightweight approach can be regarded as a benchmark to explore future potential scenarios, where storage resources would be concentrated in a reduced number of sites.

Consider for promotion

Yes

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