Contribution ID: **3**   Type: **not specified**

Experience deploying xCache for CMS in Spain

Thursday 30 March 2023 12:00 (20 minutes)

Over the last few years, the PIC Tier-1 and CIEMAT Tier-2 sites in Spain have been exploring XCache as a content delivery network service for CMS data in the region. This service aligns with the WLCG data management strategy towards HL-LHC. The caching mechanism allows data to be located closer to compute nodes, which has the potential to improve CPU efficiency for jobs, especially for frequently accessed data. Additionally, since many CMS jobs read data from remote sites using XRootD redirectors, there is significant room for improvement using this technology. We have successfully deployed XCache services at both the PIC and CIEMAT sites, and have configured them to cache popular CMS data based on ad-hoc data access popularity studies. Additional previous verification process revealed that there is no significant degradation in CPU efficiency for non I/O intensive tasks reading data from either site in the region, despite the distance between the two sites being 600km with 9ms latency. Hence, a single cache scenario for the region has been studied, with the cache placed at the PIC Tier-1 and serving data to both sites. This presentation aims to highlight our deployment experience and the benefits we have seen from using XCache in the region, as well as potential future use cases in the context of our data management strategy.

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Session Classification: XRootd presentations