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High Performance Computing for High Luminosity LHC

Monday 4 November 2019 14:00 (15 minutes)

High Performance Computing (HPC) centers are the largest facilities available for science. They are centers of expertise for computing scale and local connectivity and represent unique resources. The efficient usage of HPC facilities is critical to the future success of production processing campaigns of all Large Hadron Collider (LHC) experiments. A substantial amount of R&D investigations are being performed in order to harness the power provided by such machines. HPC facilities are early adopters of heterogeneous accelerated computing architectures, which represent a challenge and an opportunity. The adoption of accelerated heterogeneous architectures has the potential to dramatically increase the performance of specific workflows and algorithms. In this presentation we will discuss R&D work on using alternative architectures both in collaboration with industry through CERN openlab and with the DEEP-EST project, a European consortium to build a prototype modular HPC infrastructure at the exa-scale. We will present the work on a proof-of-concept container platform and batch integration for workload submissions to access HPC testbed resources for data intensive science applications. As strategic computing resources, HPC centers are often isolated with tight network security, which represents a challenge for data delivery and access. We will close by summarizing the requirements and challenges for data access, through the Data Organization Management and Access (DOMA) project of the WLCG. Facilitating data access is critical to the adoption of HPC centers for data intensive science.

Consider for promotion

Yes

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