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ATLAS usage of the Czech national HPC center: HyperQueue, cvmfsexec, and other news

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The distributed computing of the ATLAS experiment at the Large Hadron Collider (LHC) utilizes computing resources provided by the Czech national High Performance Computing (HPC) center, IT4Innovations. This is done through ARC-CEs deployed at the Czech Tier2 site, prague1cg2. Over the years, this system has undergone continuous evolution, marked by recent enhancements aimed at improving resource utilization efficiency.

One key enhancement involves the implementation of the HyperQueue meta-scheduler. It enables a division of whole-node jobs into several smaller, albeit longer, jobs, thereby enhancing CPU efficiency. Additionally, the integration of cvmfsexec enables access to the distributed CVMFS filesystem on compute nodes without requiring any special configurations, thereby substantially simplifying software distribution and broadening the range of tasks eligible for execution on the HPC. Another notable change was the migration of the batch system from PBSpro to Slurm.

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