

Advances in ATLAS@Home towards a major ATLAS computing resource

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The volunteer computing project ATLAS@Home has been providing a stable computing resource for the ATLAS experiment since 2013. It has recently undergone some significant developments and as a result has become one of the largest resources contributing to ATLAS computing, by expanding its scope beyond traditional volunteers and into exploitation of idle computing power in ATLAS data centres. Removing the need for virtualization on Linux and instead using container technology has made the entry barrier significantly lower data centre participation and in this paper, we describe the implementation and results of this change. We also present other recent changes and improvements in the project. In early 2017 the ATLAS@Home project was merged into a combined LHC@Home platform, providing a unified gateway to all CERN-related volunteer computing projects. The ATLAS Event Service shifts data processing from file-level to event-level and we describe how ATLAS@Home was incorporated into this new paradigm. The finishing time of long tasks was also greatly improved by implementing a reassignment scheduling algorithm to assign late jobs to “reliable” volunteer hosts. Finally, the steps taken to allow regular ATLAS grid sites to move completely to ATLAS@Home are shown.

Primary authors: CAMERON, David (University of Oslo (NO)); WU, Wenjing (Computer Center, IHEP, CAS); BOGDANCHIKOV, Alexander (Budker Institute of Nuclear Physics (RU))

Presenter: CAMERON, David (University of Oslo (NO))

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