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HEP@HOME - A distributed computing system based on BOINC

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Project SETI@HOME has proven to be one of the biggest successes of distributed computing during the last years. With a quite simple approach SETI manages to process huge amounts of data using a vast amount of distributed computer power.

To extend the generic usage of these kinds of distributed computing tools, BOINC (Berkeley Open Infrastructure for Network Computing) is being developed. In this communication we propose a BOINC version tailored to the specific requirements of the High Energy Physics (HEP) community - the HEP@HOME

The HEP@HOME will be able to process large amounts of data using virtually unlimited computing power, as BOINC does, and it should be able to work according to HEP specifications.

One of the main applications of distributed computing is distributed data analysis. In HEP the amounts of data to be analyzed have a large order of magnitude. Therefore, one of the design principles of this tool is to avoid data transfer - computation is done where data is stored. This will allow scientists to run their analysis applications even if they do not have a local copy of the data to be analyzed, taking advantage of either very large farms of dedicated computers or using their colleagues desktop PCs. This tool also satisfies other important requirements in HEP, namely, security, fault-tolerance and monitoring.

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