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Volunteer Clouds and Citizen Cyberscience for LHC Physics ^[1]

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Computing for the LHC, and for HEP more generally, is traditionally viewed as requiring specialized infrastructure and software environments, and therefore not compatible with the recent trend in ?volunteer computing?, where volunteers supply free processing time on ordinary PCs and laptops via standard Internet connections. In this paper, we demonstrate that with the use of virtual machine technology, at least some standard LHC computing tasks can be tackled with volunteer computing resources. Specifically, by presenting volunteer

computing resources to HEP scientists as a "volunteer cloud", essentially identical to a Grid or dedicated cluster from a job submission perspective, LHC simulations can be processed effectively. This article outlines both the technical steps required for such a solution and the implications for LHC computing as well as for LHC public outreach and for participation by scientists from developing regions in LHC research. Presented at the International Conference on Computing in High Energy and Nuclear Physics (2010) : event.twgrid.org/chep2010.

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One of the authors of this paper is Jie Wu, a former CERN openlab Summer Student in 2010.

His project report is available here: [2]

Technical document file:

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