

A Survey of Chinese Spallation Neutron Source Cloud Computing System

The requirements of computing and storage for High Energy physics experiments are growing rapidly with the continually expansion of experiments, and the forthcoming completion of Chinese Spallation Neutron Source (CSNS) has also higher needs for computing and storage system. The new computing mode—cloud computing—can make IT resources configuration flexible and management centralized. Under this computing environment, the cost of hardware can be reduced and the resource utilization has also been a lot more improved. So the application of cloud computing in High Energy Physics Experiments will be showed in this paper.

From the research and practice aspects, firstly, the application status of cloud computing science in High Energy Physics Experiments are introduced in this paper. Secondly, the special requirements of CSNS, which is constructing by the insitute of High Energy Physics of Chinese Academy of Sciences, are discussed further. Thirdly, the design and practice of cloud computing platform based on OpenStack will be mainly demonstrated from the aspects of deployment architecture, optimization, cloud storage system, maintenance system and monitoring system. And finally, the present status of CSNS computing environment are summarized and some future prospects are put forward in the ending of this paper.

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