

Design and Deployment of a Elastic Network Test-bed in IHEP Data Center based on SDN

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High energy physics experiments produce huge amounts of raw data, while because of the sharing characteristics of the network resources, there is no guarantee of the available bandwidth for each experiment which may cause link competition problems. On the other side, with the development of cloud computing technologies, IHEP have established a cloud platform based on OpenStack which can ensure the flexibility of the computing and storage resources, and more and more computing applications have been moved to this platform, however, under the traditional network architecture, network capability become the bottleneck of restricting the flexible application of cloud computing.

This report introduces the SDN implementation in IHEP to solve the above problems, we built a dedicated and elastic network platform based on the data center SDN technologies and network virtualization technologies. Firstly, the elastic network architecture design of the cloud data center based on SDN will be introduced, then in order to provide a high performance network environment in the architecture, a distributed SDN controller based on OpenDaylight is proposed and will be introduced in detail, moreover, the network scheduling algorithm and efficient routing protocol in our environment will also be researched and discussed. In the end, the test results and future works will be shared and analyzed.

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Virtualization

Primary Keyword (Mandatory)

Network systems and solutions

Tertiary Keyword (Optional)

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