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SDN implementations at IHEP

This Paper describes two research aspects and practices of SDN at IHEP. The first one is the SDN practice for the data transferring across the internet, in which a virtual private network based on SDN is designed and built, and an intelligent network route algorithm is developed and deployed in the SDN controller to make full use of IPv6 resources. Experimental results show that this practice can solve the network bandwidth problem between cooperation members of the high energy physics experiments around China. The second one is about the deployment of SDN in the internal data center of IHEP, which provides the flexible network management in the virtualization environment, but the latency and the throughput of the SDN controller is far from our expectation. In order to improve the performance of the SDN controller, we compare four controllers in our second test bed, including NOX, NOX-MT, Beacon and Maestro, and analyzed the performance both in latency and in throughput. At last, a new SDN controller design through the method of patching and reducing the data path request frequency, which is dedicated to high performance SDN in the internal data center of IHEP is proposed.

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