

The Billing System of IHEP Data Center

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IHEP manages a number of China's major scientific facilities, including BEPC, BES, BSRF, HXMT, ADS JUNO, CSNS, CEPC, the International Cosmic-Ray Observatory at Yangbajing in Tibet, the Daya Bay Neutrino Experiment etc. Data generated by these facilities is processed in IHEP data center.

There are many computing resources in IHEP data center, including cloud computing resources, local cluster resources, distributed computing resources, GPU resources, etc. But sometimes the utilization rate is imbalance because some resources belong to and can only be used in an experiment. So we develop the billing system to promoting resource sharing.

The billing system is a system for renting some kinds of computing resources of the data center and implementing integrated billing for these resources. Users can rent any computing resources by this system, and they can check real-time bill too. The managers of experiment resources can also check the resource usage and the income.

The billing system is designed and implemented based on B/S structure and MVC pattern, using JAVA programming technology. It mainly covers three function modules: product & service, user center and system management.

(1) It lists all the computing resources and the accounting rules in product & service module. Users can login the billing system use the account of IHEP unified authentication, they can rent the resources according to their needs, and they can apply to use free resources too.

(2) In user center, users can view details of resources they had rented, and they can check the real-time bill too.

(3) Management platform provides services for managers. They can manage and publish computing resources product, they can redeploy resources pool, and they can manage billing information too.

Now the billing system mainly manages computing resources, in future we will extend modules for private cloud storage, database resources, etc.

Primary authors: Ms OU, Ge (Institute of High Energy Physics, CAS, China); Ms ZHANG, Hongmei (Institute of High Energy Physics, CAS, China); Ms WANG, Li (Institute of High Energy Physics, CAS, China); Mr WANG, Wenshuai (Institute of High Energy Physics, CAS, China)

Presenter: Ms ZHANG, Hongmei (Institute of High Energy Physics, CAS, China)

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