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## Automatic Deployment of a Nuclear Fusion Experimental Data Storage Cluster

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With the rapid growing of experiment data, widely using of distributed database or file system will be the trend in future fusion storage. For such storage systems, a cluster is required, but its setting up and service's deploying are challenging. Besides, plenty of configurations should be set carefully, including environment variable and software runtime, which is a complicated task. Apart from that, due to the variety of hardwares and difference between test and production environment, particular setup procedures are required. J-TEXT Cloud Database (JCDB) is a nuclear fusion experimental data storage and management system, aiming to satisfy the requirements of future long pulse experiment. Based on MongoDB server, Cassandra cluster servers and web applications servers, it will cost much time for JCDB to setup these servers from the beginning. To scale out and configure more conveniently and automatically, JCDB used Docker, a lightweight software containerization platform, to build cloud database and web applications, guaranteeing consistency of the all servers and reducing plenty of time. JCDB pushed two images to Docker repository and scaled out by pulled specified images. Even without any servers on hand, you can also deploy it on cloud services such as Amazon Web Services, Microsoft Azure.

### Eligible for student paper award?

Yes

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