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EAST Integrated Data Access System Based On Spring Cloud

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The experimental data generated by EAST during operation includes different types such as operation logs, control data, engineering data, diagnostic data and etc. Combined with visual operation requirements and data structures, multiple data service systems are established based on a single architecture. As the experiment continues to run, the scale of experimental data, system access load, and business complexity increase rapidly, the existing system is limited in maintenance and expansion, and the data lacks a unified access mechanism. In view of the limitations faced by EAST data services, the EAST Integrated Data Access System (IDAS) is designed based on the Spring Cloud framework. Firstly, Vue is used to build a system portal to achieve cross-platform access to EAST long pulse diagnostic data, providing users with a unified entrance that supports cross-terminal access to EAST data services. Secondly, a data engine was built using Kafka as the message center to manage and monitor experimental data with more than 500 million signal records and a total volume of approximately 3000TB based on multiple indicators. Thirdly, a unified identity authentication center is built based on Spring Security to simplify the identity authentication process and realize multi-system single sign-on function. Finally, Spring Cloud components are introduced to establish a service governance mechanism to realize important functions such as micro service registration, health check, and service forwarding.
The IDAS system has been adopted in EAST experiment successfully and provides users with a comprehensive data service system that supports unified access to experimental data, experimental data management and monitoring, and unified identity authentication function.

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