

Guanghai Yu | Bryce Yu

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Summary

Seasoned software engineer with a solid 3-year background in developing distributed OLTP database systems, complemented by another 3 years crafting scalable, data-intensive applications. Expert in database DDL, kernel, and distributed systems.

Work Experience

ApeCloud - Database Kernel Team (remote)

2023/01 – Current

1. Led the design and implementation of WeScale, an opensource MySQL Database Proxy, enhancing database performance with features like connection management, read-write splitting, read-after-write consistency, load balancing, and support for Online DDL operations.
2. Directed the development of the project's GitHub workflow, establishing CI/CD pipelines, test procedures, coding standards, automated performance testing, and packaging processes.
3. Managed the WeScale open-source community, regularly producing articles and insights to increase project visibility and foster a positive community environment.
4. Mentored and guided an intern team through solution design, pair programming, and code reviews, contributing to the project's collaborative and educational culture.
5. Engineered the deployment strategy for WeScale within Kubernetes, facilitating its delivery on the platform.

Alibaba Cloud - PolarDB-X Database Kernel Team

2020/08 – 2023/01

1. Lead the design and implementation of a Distributed DDL execution engine in PolarDB-X, it allows the database system to preserve ACID properties while performing schema changes on the cluster. Other features like multi-version metadata, MPP execution, and visualization are also included. Reduced ticket volume by over 50% and code complexity from 200 to 15 compared to the previous DDL engine.
2. Designed and implemented a table re-sharding algorithm and associated DDL within PolarDB-X, facilitating the dynamic reorganization of sharded tables based on a new schema without interrupting ongoing transactional read and write operations.
3. Led the design and implementation of the TTL table for PolarDB-X, enabling massive expired data to be automatically deleted instantly without impacting the current database performance. The core order system of Yunda Express utilizes this feature for historical data management.
4. Invented and executed a distributed metadata deadlock detection algorithm, a critical safeguard that prevents system-wide hangs and crashes by resolving potential distributed metadata deadlocks.
5. Designed and implemented some kernel components for PolarDB-X, such as persistent read-write lock, leader election module, scheduled job manager.

Alibaba Group - Web Backend Development

2018/02 – 2020/07

1. Devised a flow control module for DingTalk API Gateway to protect the backend services, enhancing the API Gateway's availability and response time.
2. Managed daily development and maintenance of job.alibaba.com and developed backend APIs for Alibaba Group's WeChat recruitment official account.
3. Designed and implemented a user behavior tacking system based on a message queue, and a column store relational database. The system supports high throughput write operations and high-performance analytic SQL query operations.

ZhongAn Online P&C Insurance Co. Ltd. - Web Backend Development

2017/07 – 2018/02

1. Designed MySQL database models and developed web applications using Java and SpringMVC.
2. Designed a set of service-provider-interface that speed up the system integration with other car insurance companies. Reduced 30% of the development work.

Education

NanChang University - Computer Science, Bachelor's Degree

2013/09 – 2017/07