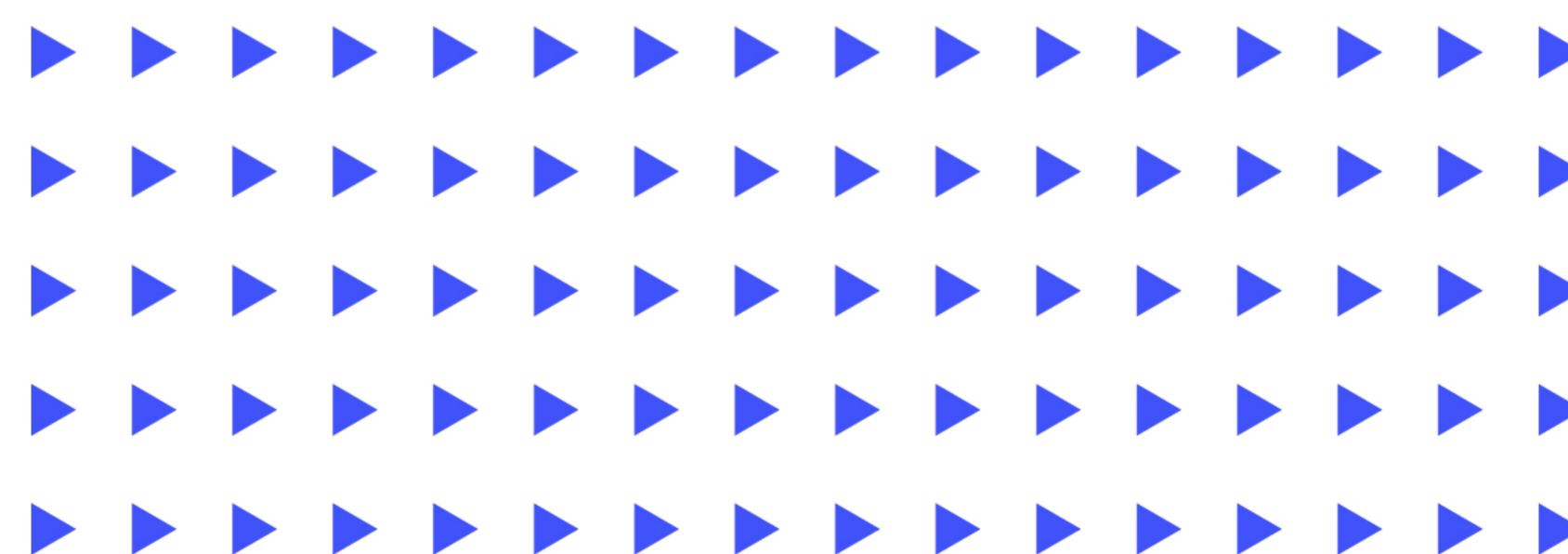
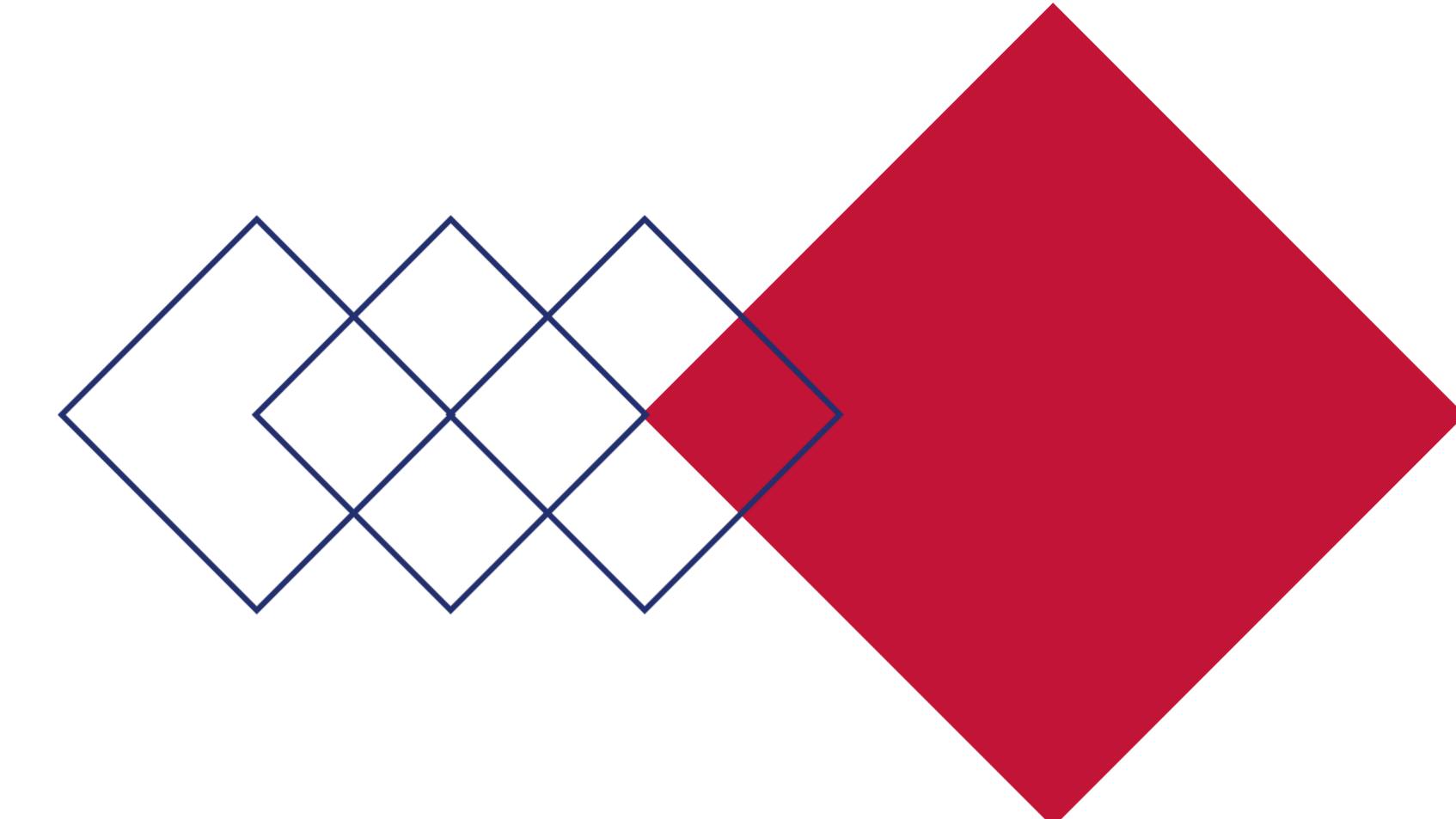


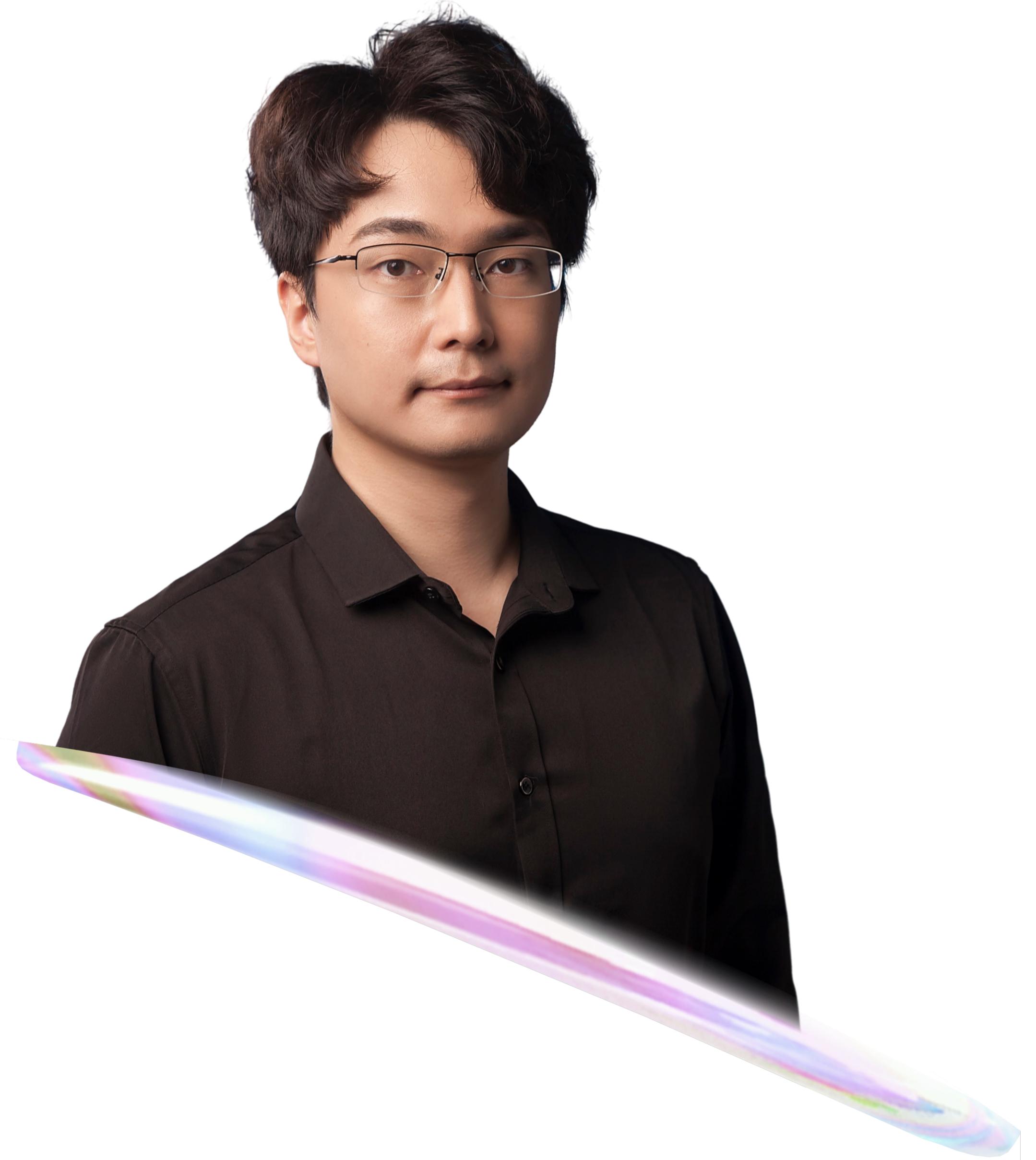
TiDB:

Your next MySQL is not a MySQL



{ Qizhi Wang } Senior Developer Advocate
TiDB Ecosystem Software Architect





Qizhi Wang

I have 7 YOE of Programming and Architect, and held key positions at Tencent Music, Jinjiang, and other companies, consistently dedicated to code development and refinement, focusing on building developer ecosystems, enhancing R&D efficiency and user experience, and empowering developers.

Currently, I am responsible for the TiDB ecosystem architecture and developer advocacy at PingCAP. I have achieved integration of TiDB with platforms such as AWS, GORM, MySQL Connector, Hibernate, DBeaver, and vscode-sqltools. I have also authored TiDB developer documentation to ensure a smoother development experience with TiDB. Additionally, I serve as a business developer representative, maintaining TiDB's competitive edge among developers.

Overview

01 What is a Distributed Database?

02 What is TiDB?

03 What are the Problems with Traditional Data Architectures?

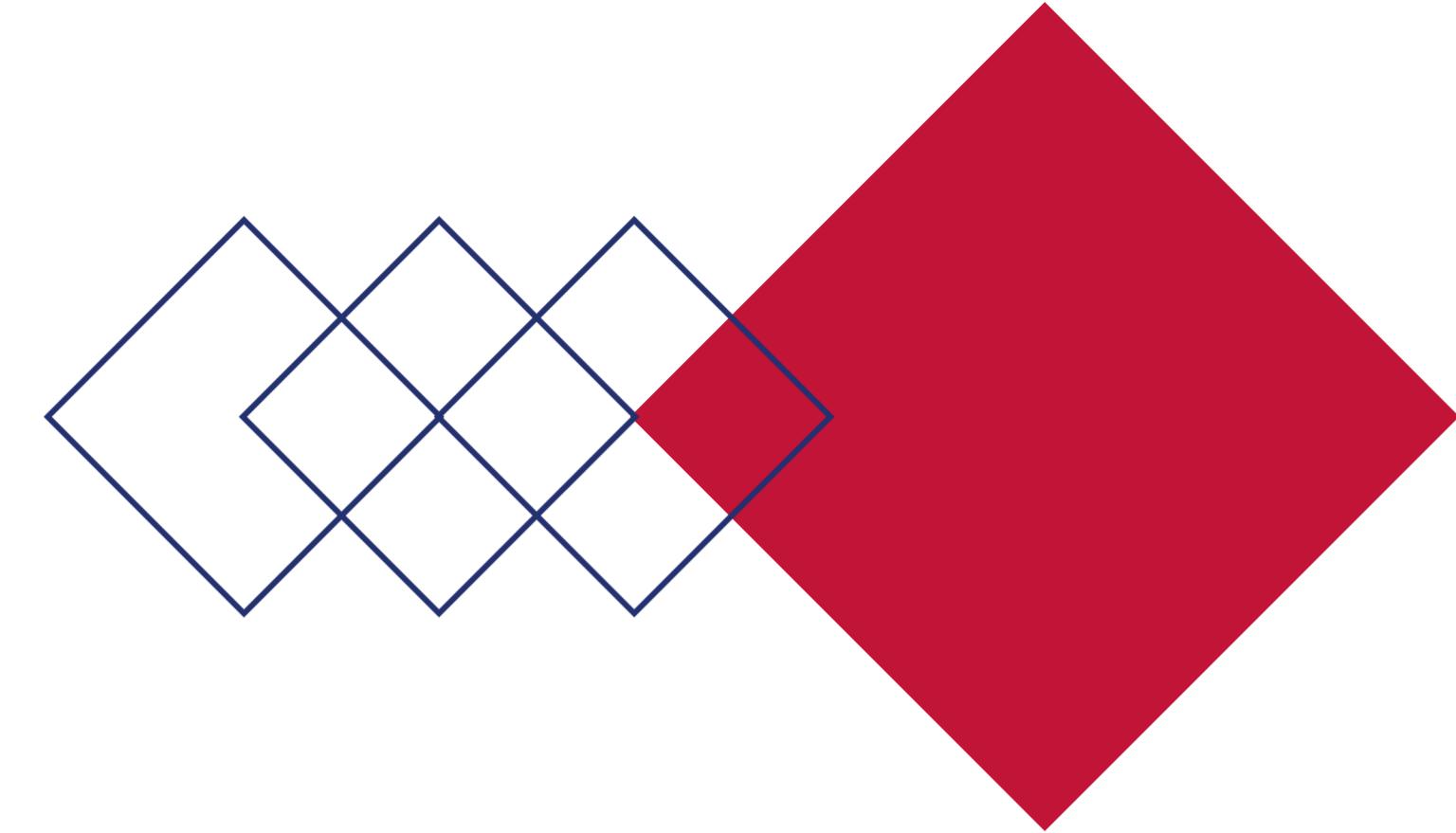
04 All-in-One Databases Help Reduce Developer Burden

05 Vector type within TiDB > TiDB + Vector Database

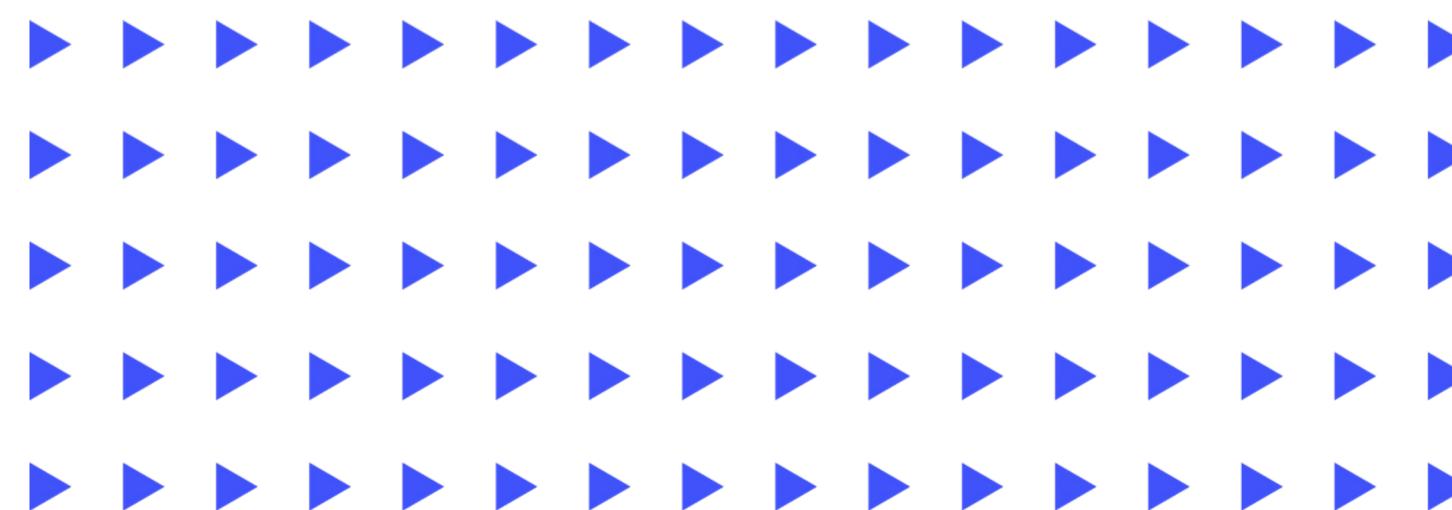
06 Support from TiDB

07 Ending

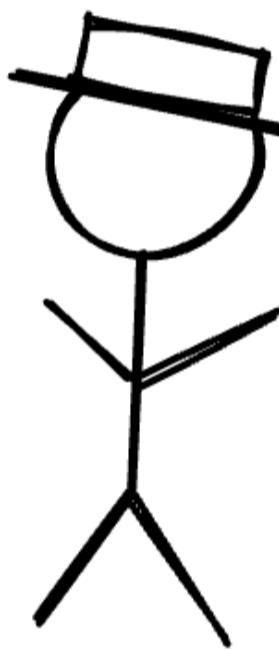
_ Part 01



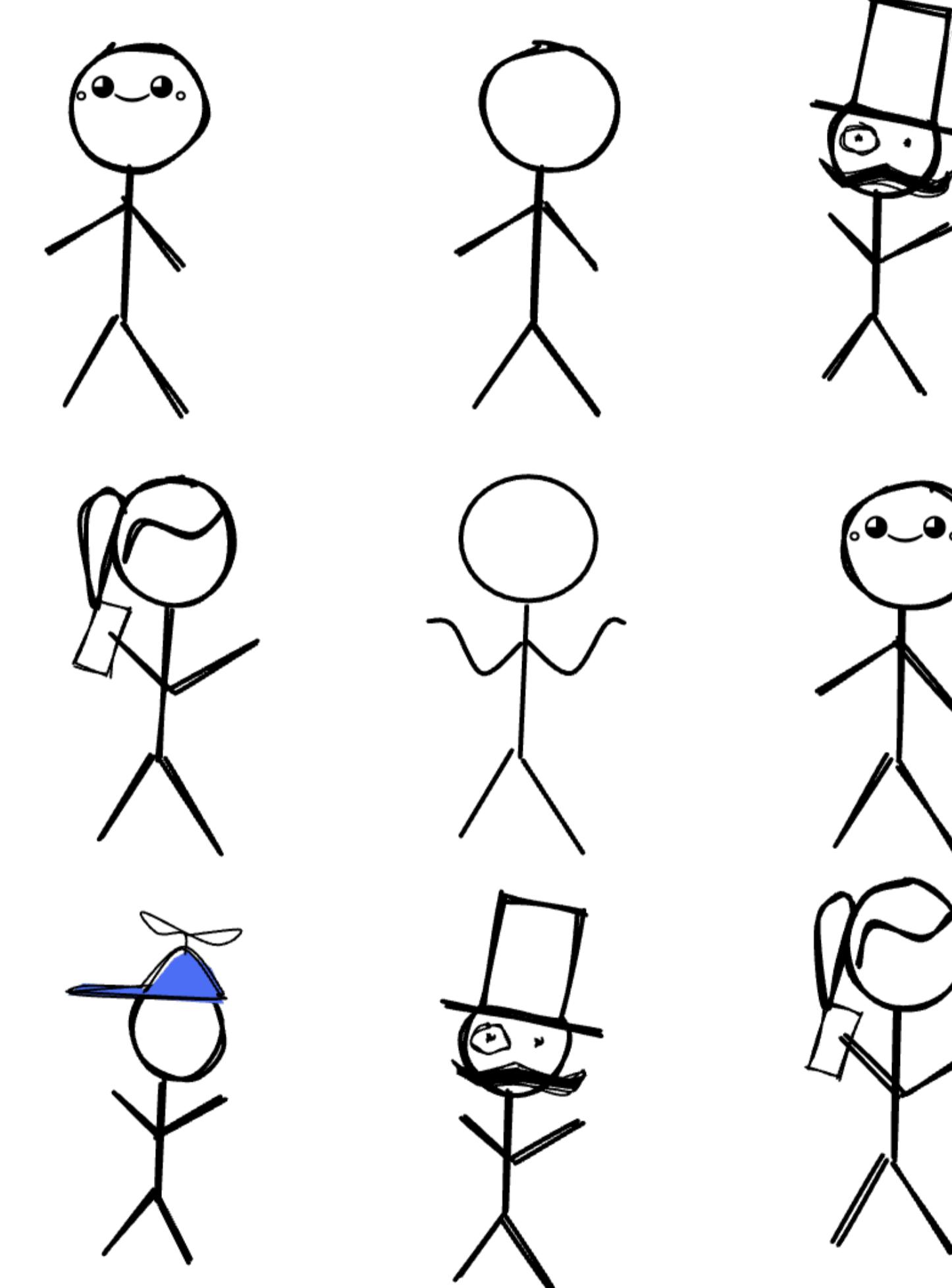
What is a Distributed Database?



Distribute + Database

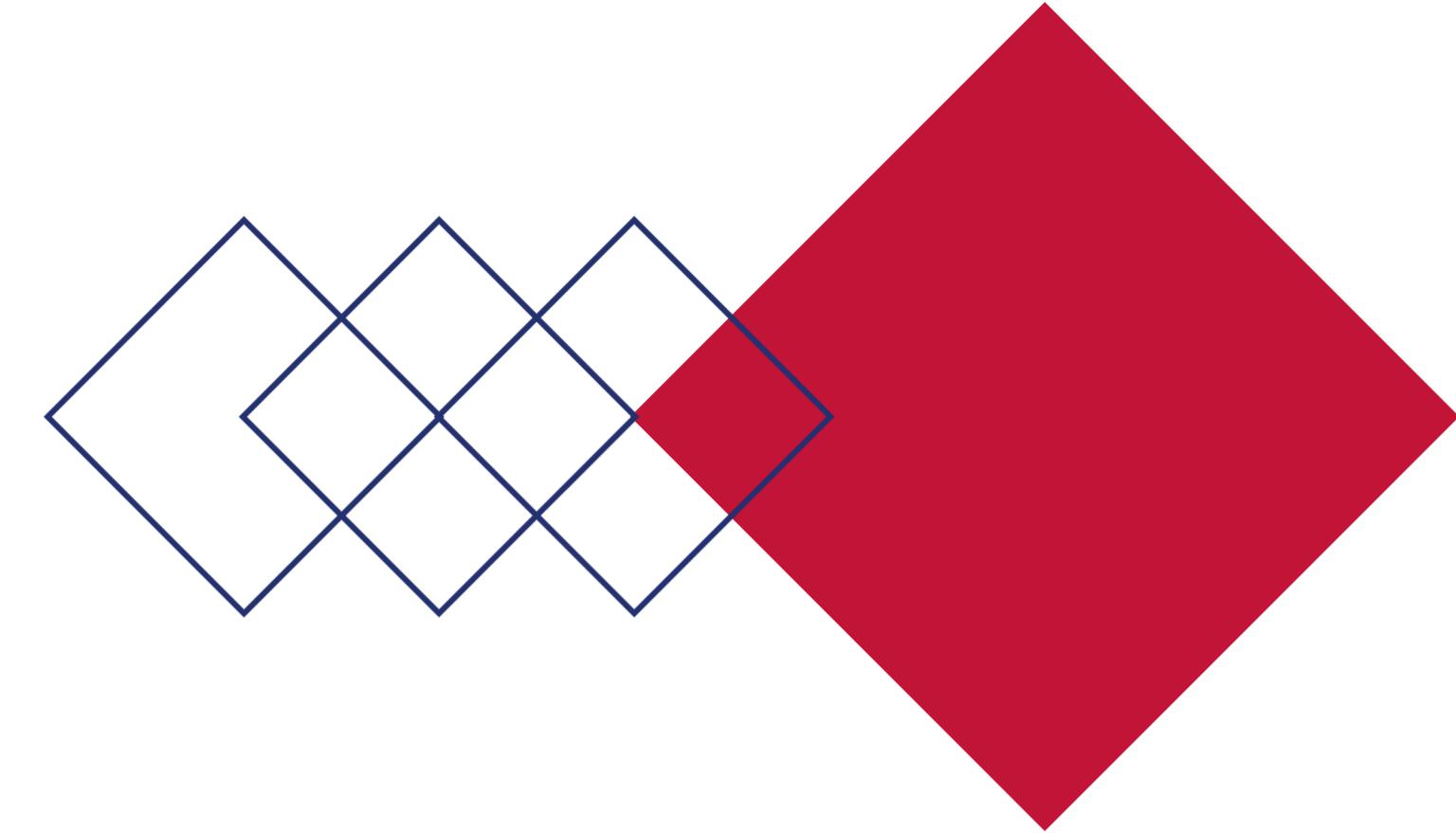


Full Stuck

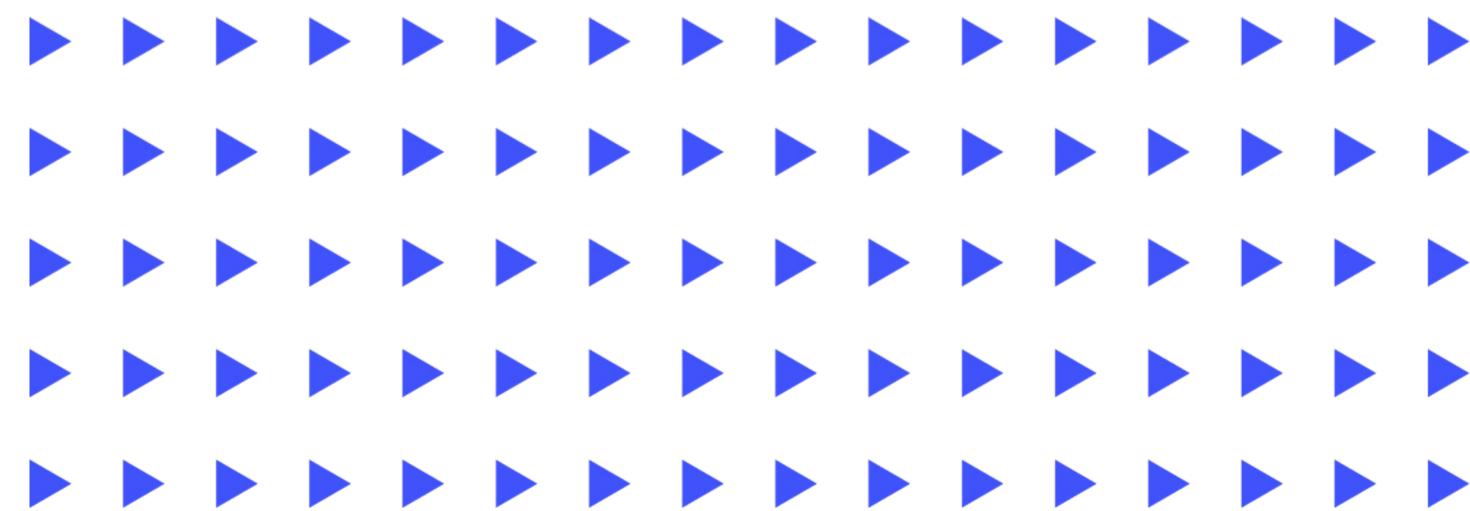


Multi-Role Team

_ Part 02



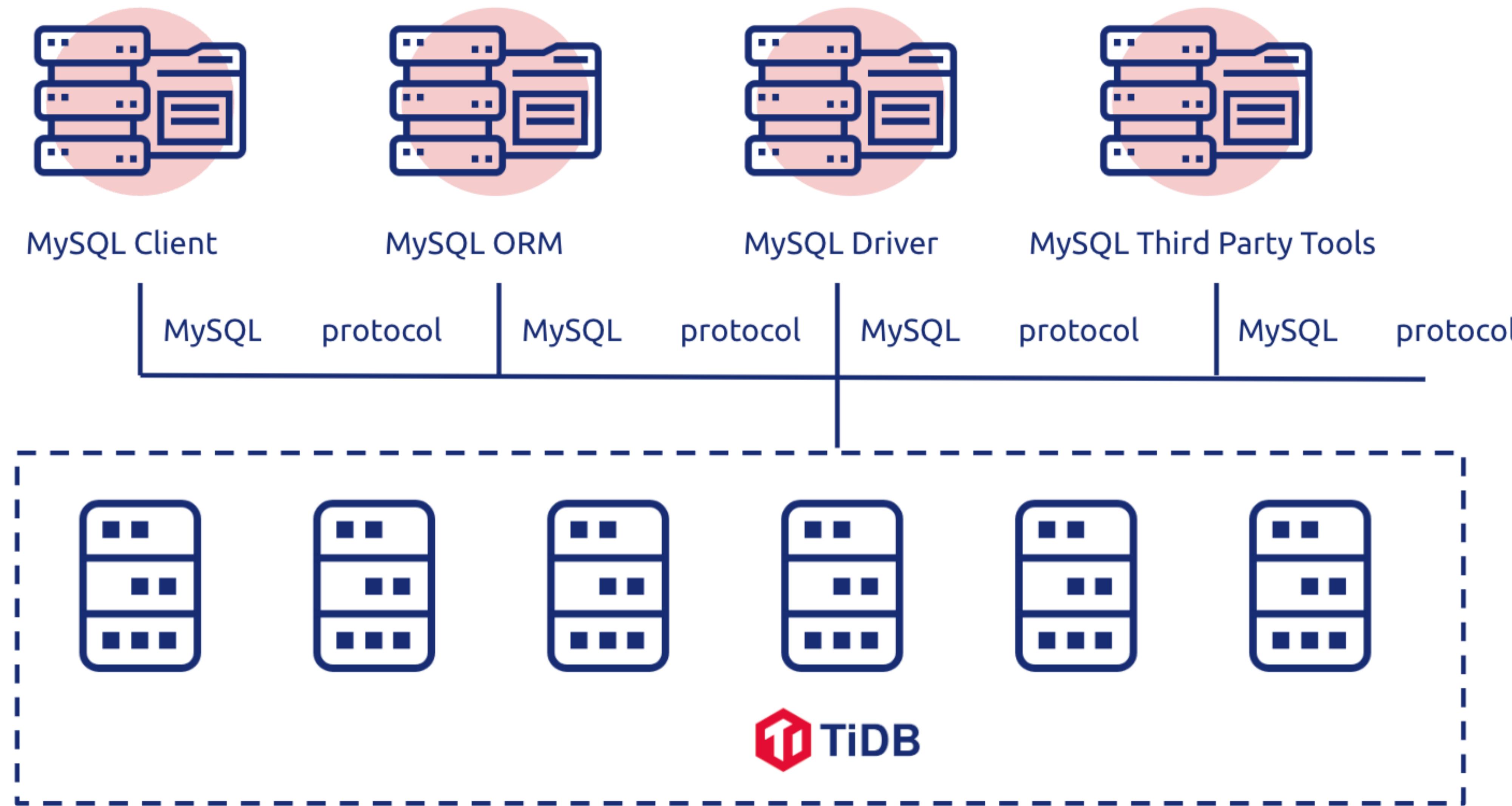
What is TiDB?



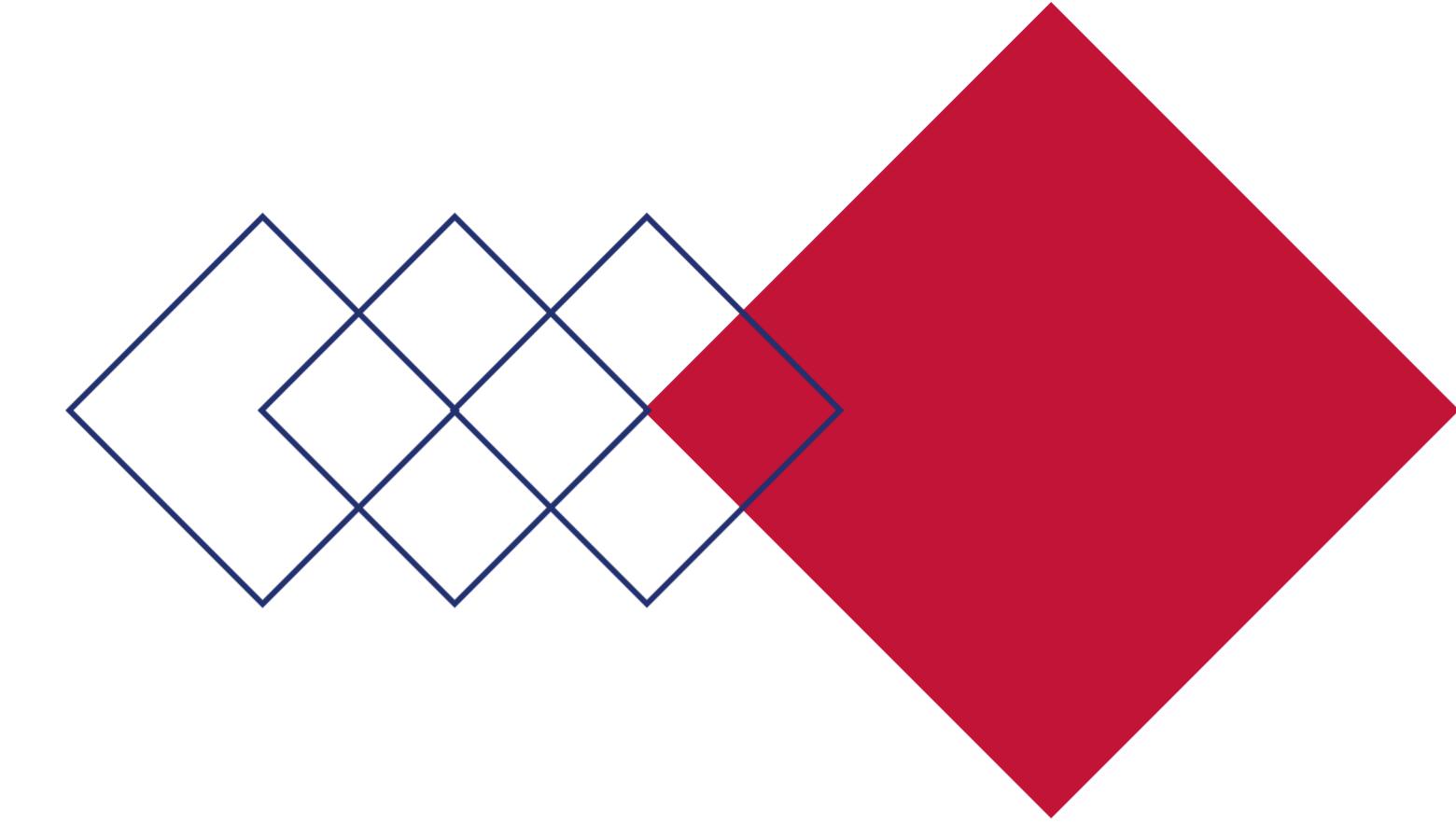
MySQL, But XXXXXXXXXL Size



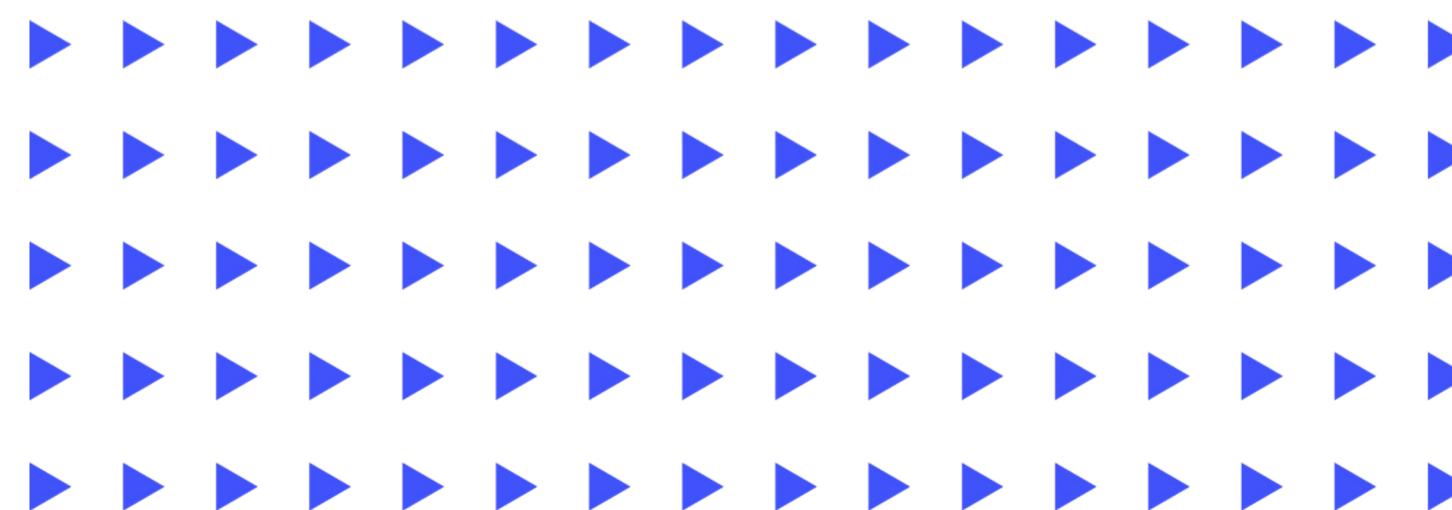
MySQL Ecosystem



_ Part 03



What are the Problems with Traditional Data Architectures?



Evolution of Traditional Architectures



Evolution of Traditional Architectures

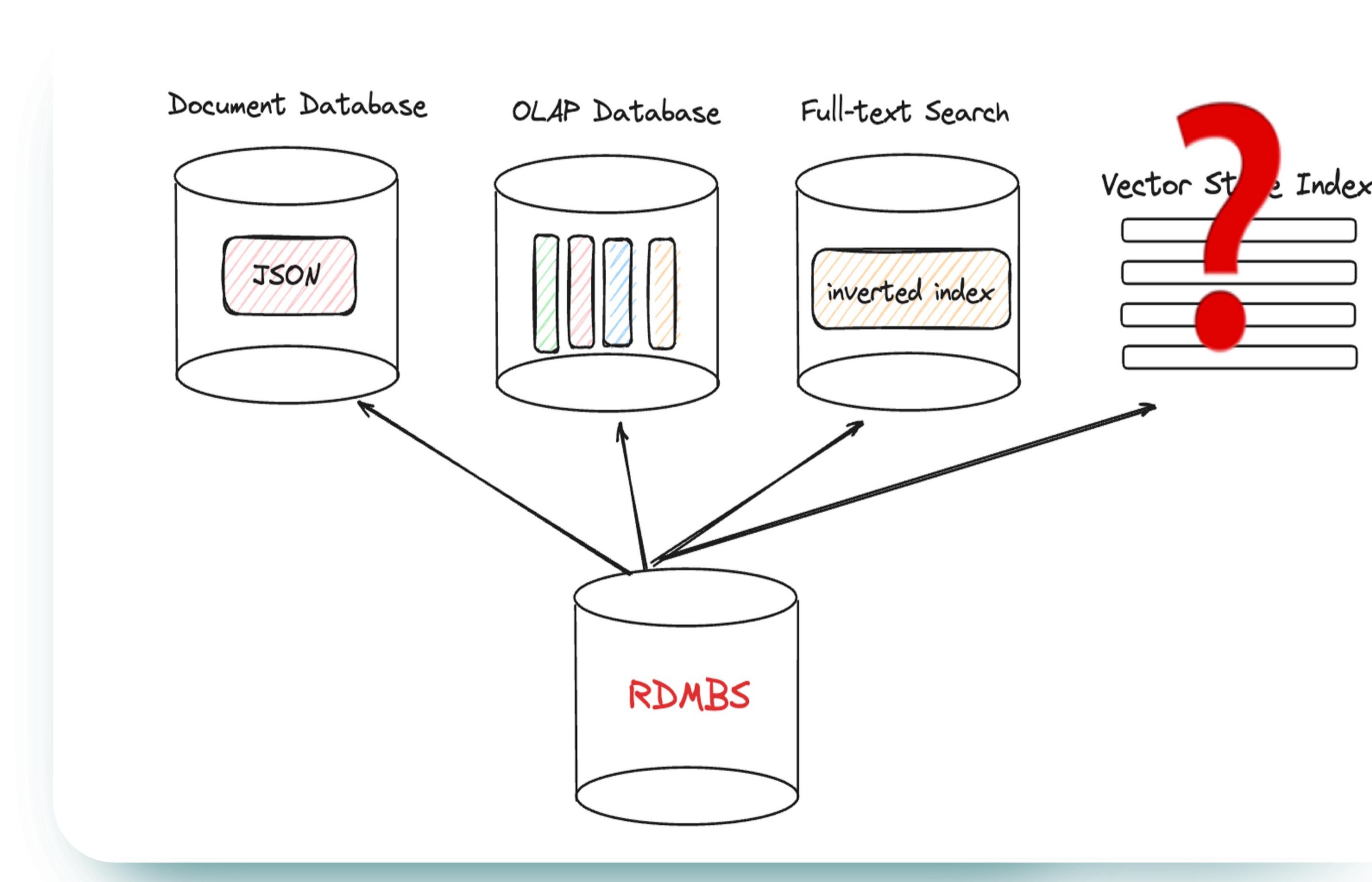


Dev Leader

User/Data
Surge

Sharding

Whenever we encounter a problem in RDB that we cannot solve
we always tend to create something entirely new to tackle it



Application Developer was like:

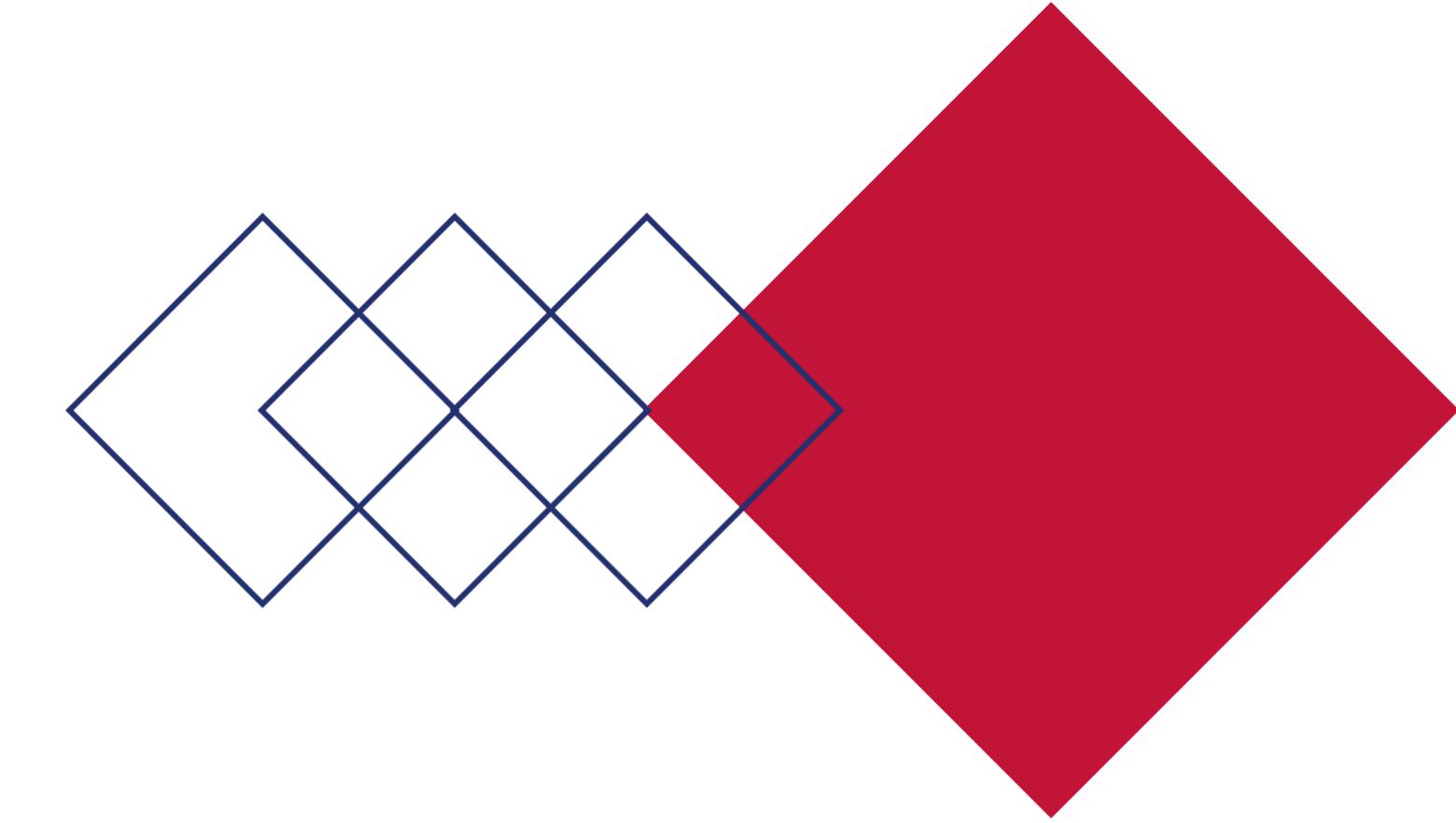


Core Concept of Traditional Architectures

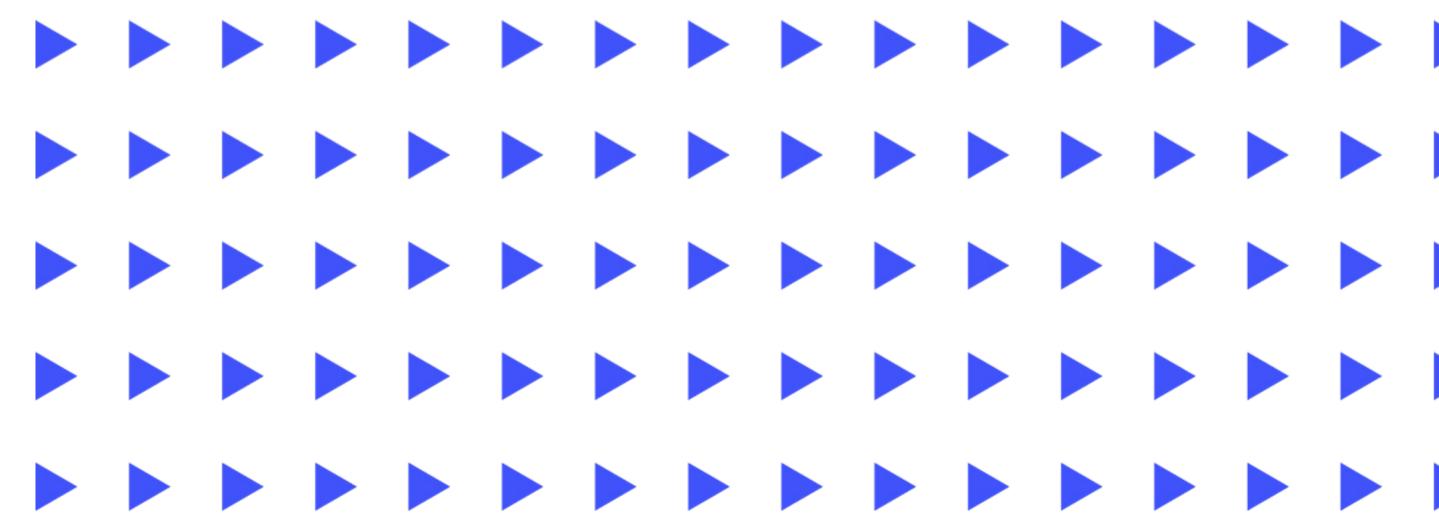
 TiDB | COMMUNITY



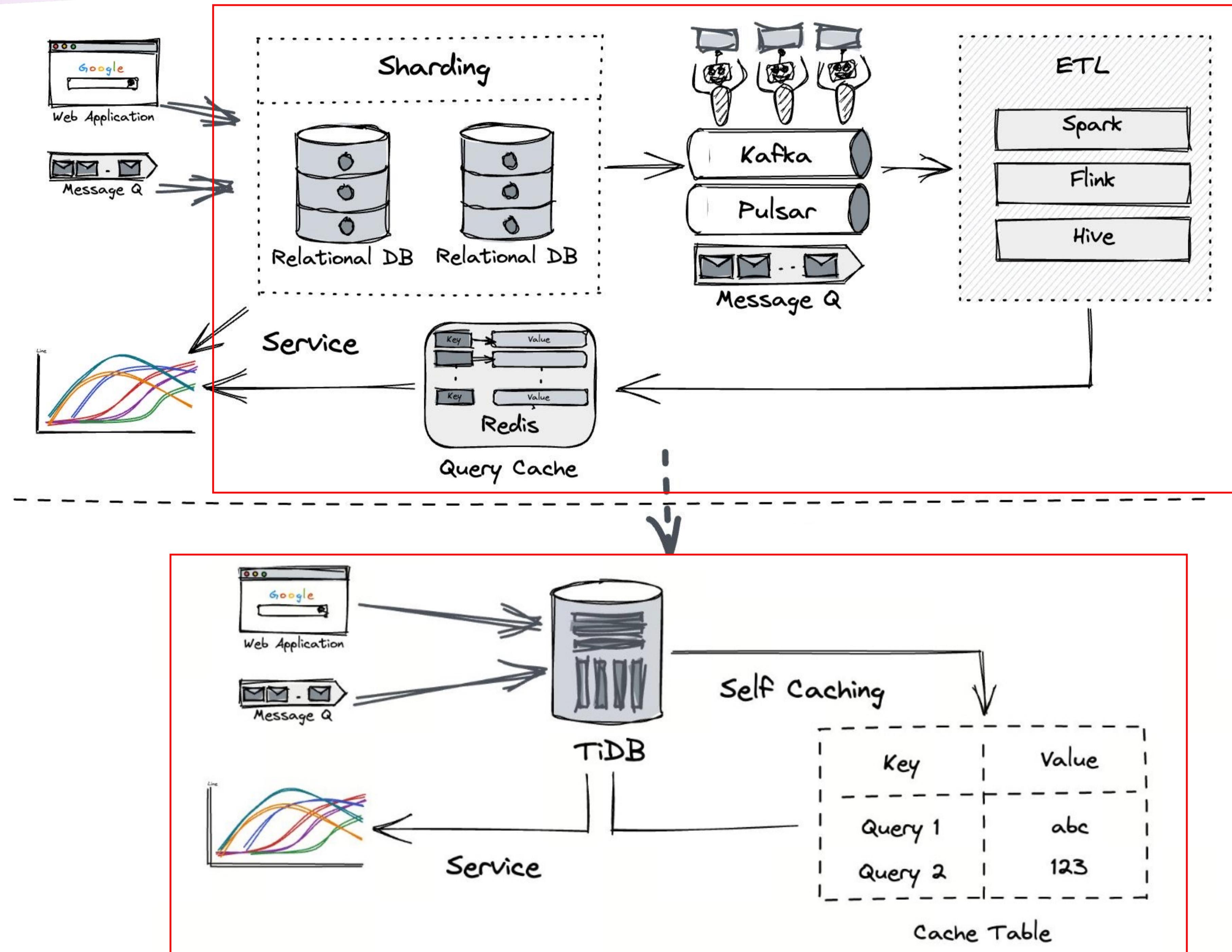
_ Part 04



All-in-One Databases Help Reduce Developer Burden



Architecture Comparison



Free for Small Clusters



BETA

Serverless

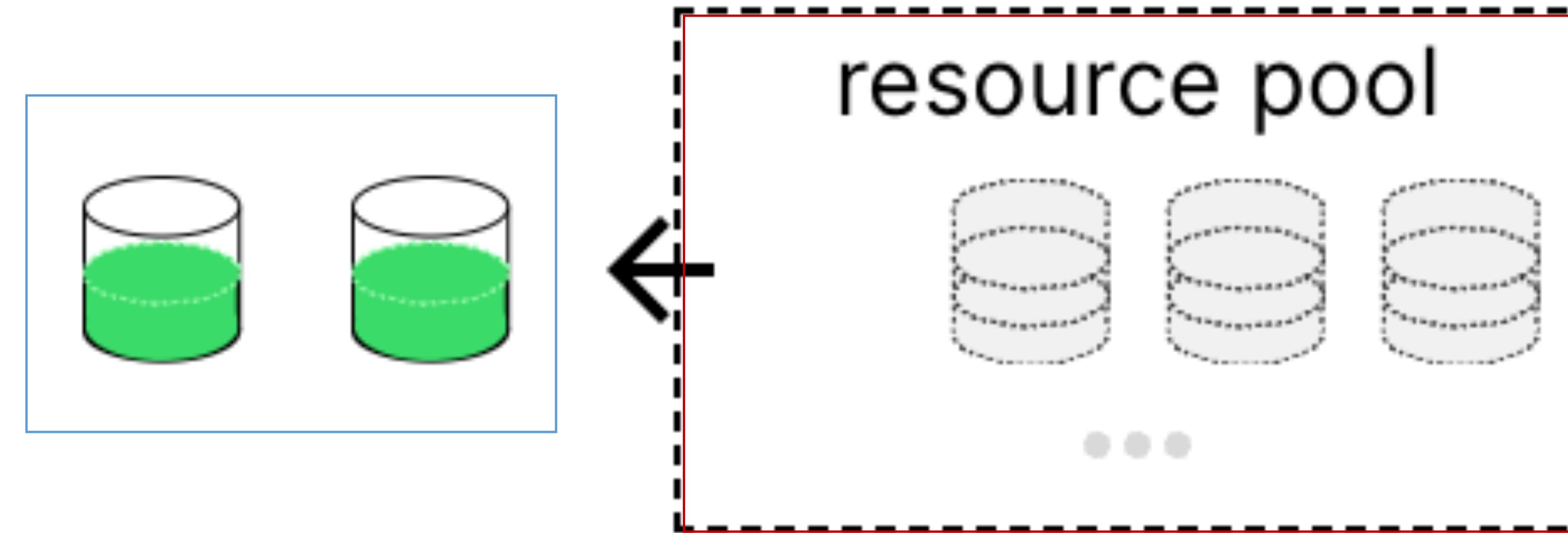
High available elastic clusters with free forever option.

- ✓ Full access to HTAP functionality
- ✓ 5GiB Storage **FREE** forever
- ✓ 50M Request Units **FREE** each month

Borrow and Return as Needed



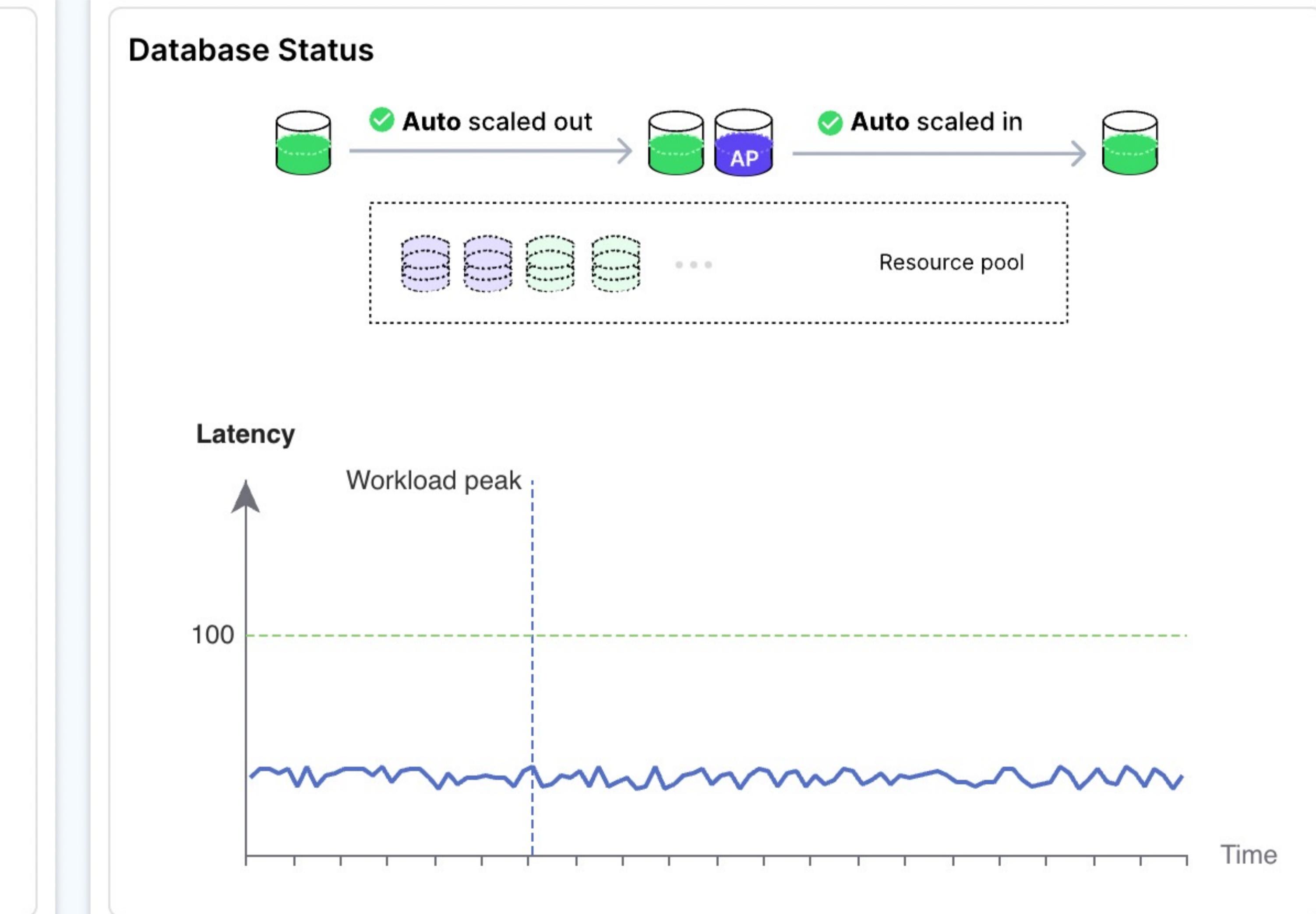
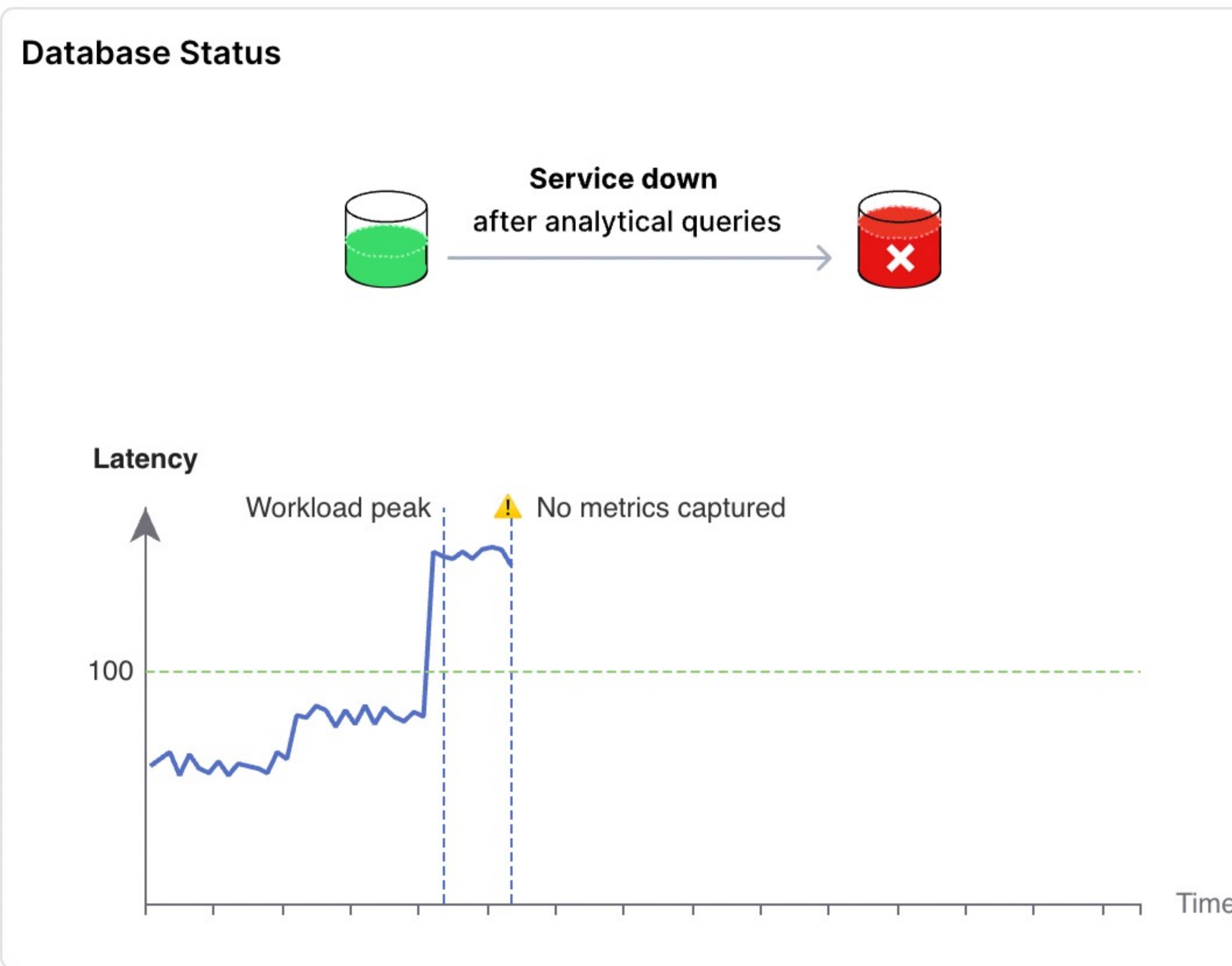
Pay as You Go



Pay-as-you-go

No need to pay for
idle resources

Handle sudden traffic without any hassle



TiDB Serverless even helps reduce your costs



Free

250M RU

205.21_{QPS}

OSM (OpenStreetMap)

1200QPS

\$121_{/m}

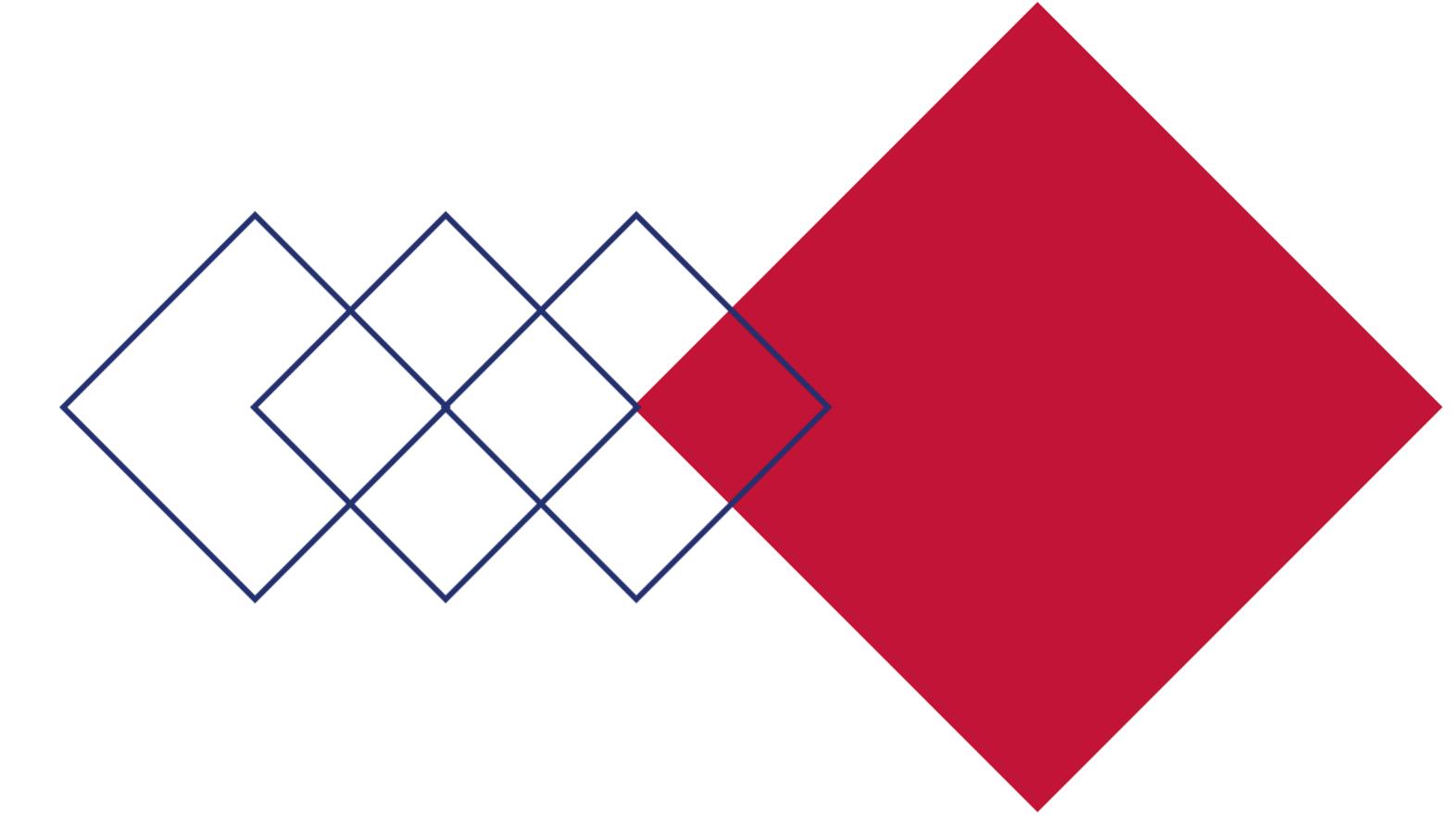
Twitter in 2009

2400QPS

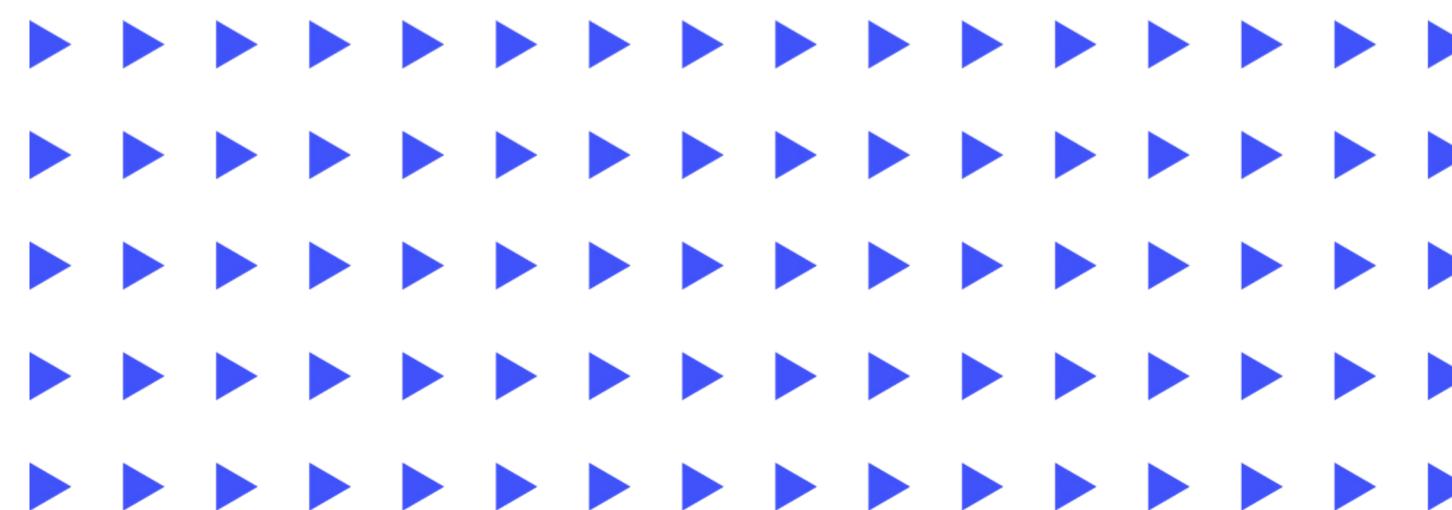
\$267_{/m}

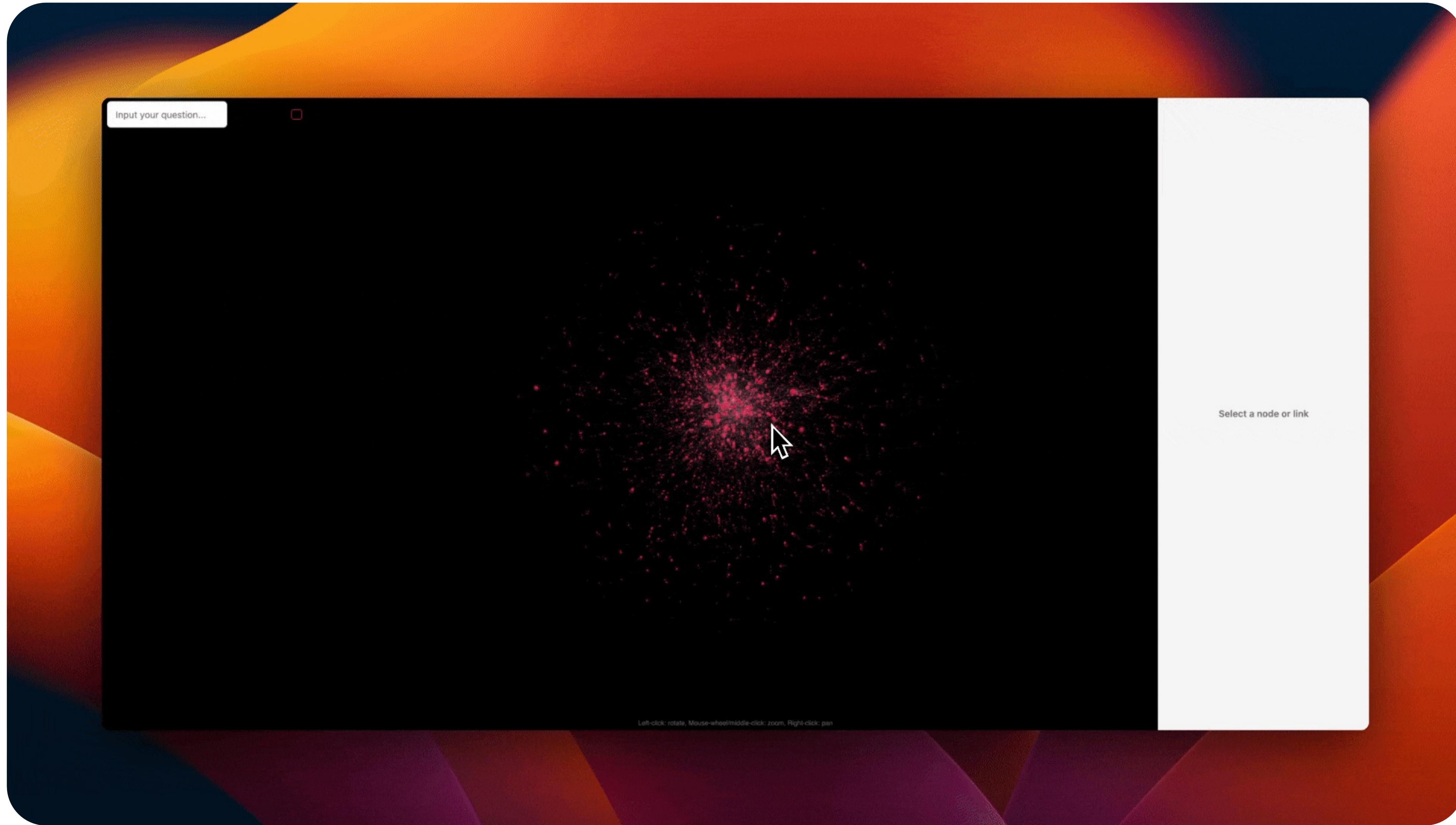
The above calculations are based on read load scenarios; actual expenses should be determined according to TiDB Cloud Billing results.

_ Part 05



Vector within TiDB >
TiDB + Vector Database





TiDB Serverless Supports Vector Search



Capable of Vector Search Without Limiting Data Volume

Isn't that convenient? Welcome to experience TiDB Serverless; this way, please:



PingCAP Products Solutions Resources Company Docs Book a Demo Start Free

The Most Advanced SQL-compatible Vector Solution Public Beta

TiDB is introducing a built-in vector search to the SQL database family, enabling support for your AI applications without requiring a new database or additional technical stacks. With vectors as a new data type in MySQL, you can now store and search for vectors directly using SQL.

[Start Free](#) Documentation →

MySQL & Vector All in One

Join Multi-model Data with Ease

Vast Array of Use Cases

```
mysql> CREATE TABLE vector_table(embedding VECTOR);
Query OK, 0 rows affected (0.05 sec)

mysql> INSERT INTO vector_table VALUES
    --> ('[5.3, 6.2, 4.7, 9.4, 3.2]'),
    --> ('[7.4, 8.3, 3.6, 9.5, 1.5]'),
    --> ('[1.6, 5.3, 3.9, 4.9, 3.4]'),
    --> ('[4.6, 6.2, 2.9, 5.5, 2.4]'),
    --> ('[8.2, 2.7, 5.9, 4.5, 1.1]');
Query OK, 5 rows affected (0.02 sec)
Records: 5 Duplicates: 0 Warnings: 0

mysql> SELECT
    --> embedding,
    --> VEC_Cosine_Distance(embedding, '[1,2,3,4,5]') AS d
    --> FROM vector_table
    --> ORDER BY d;
+-----+-----+
| embedding | d      |
+-----+-----+
| [1.6,5.3,3.9,4.9,3.4] | 0.09597214606787163 |
| [5.3,6.2,4.7,9.4,3.2] | 0.15841034048519986 |
| [4.6,6.2,2.9,5.5,2.4] | 0.21071371150541895 |
| [7.4,8.3,3.6,9.5,1.5] | 0.28466052143741205 |
| [8.2,2.7,5.9,4.5,1.1] | 0.35390651635892556 |
+-----+-----+
5 rows in set (0.02 sec)
```

MySQL Ecosystem' s pg_vector

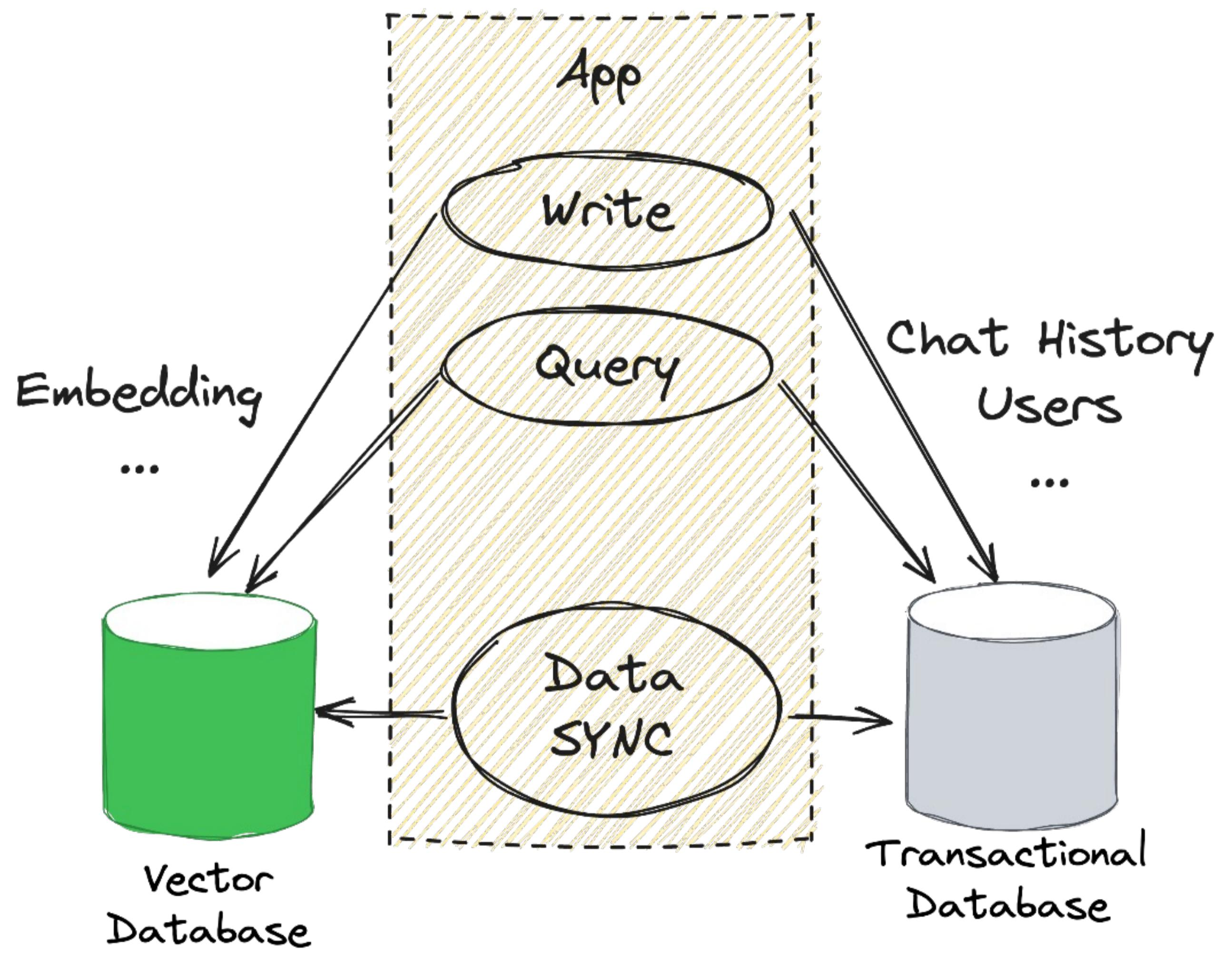


Even Better

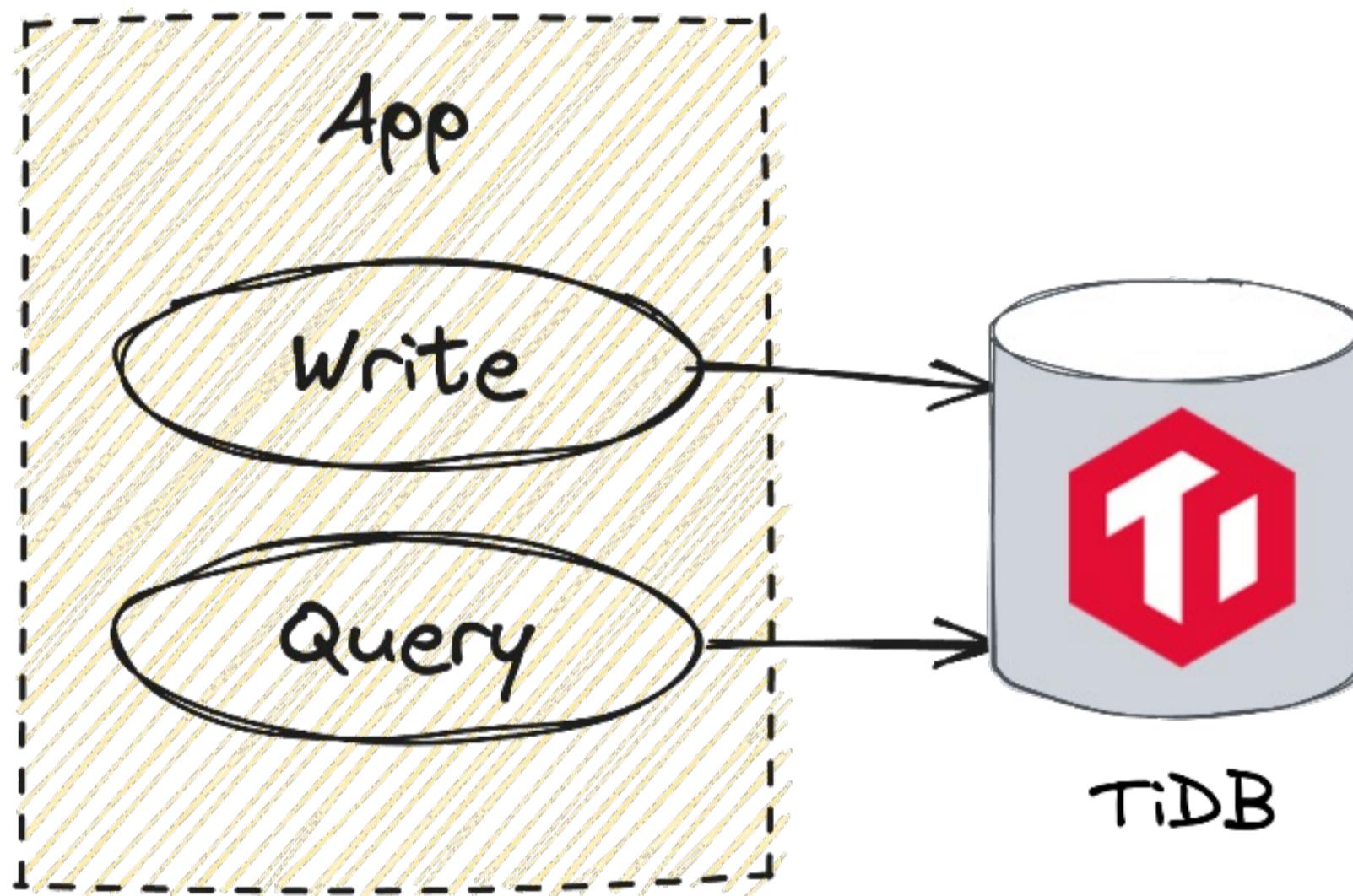


Simplified architecture

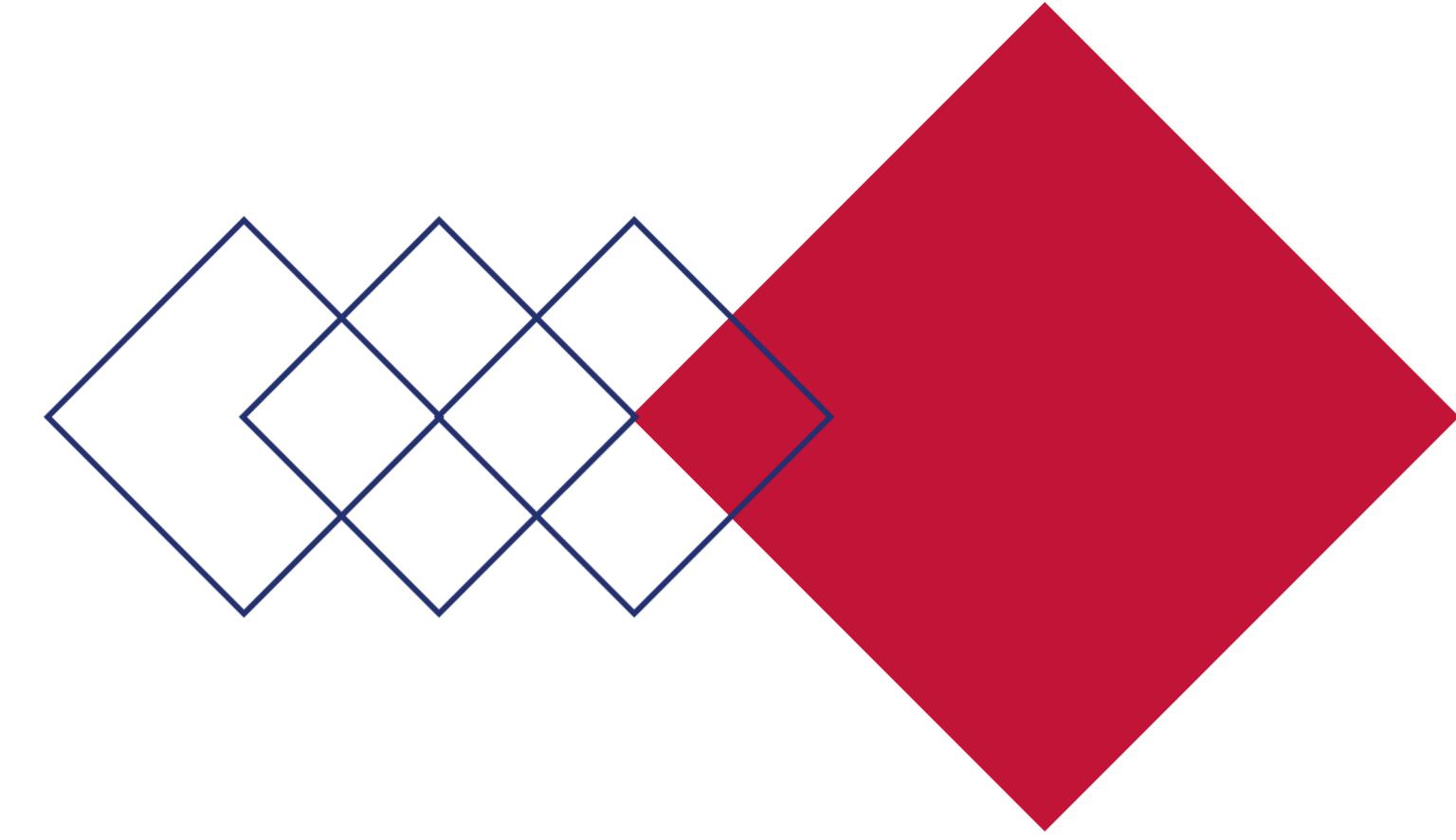
Complex Architecture



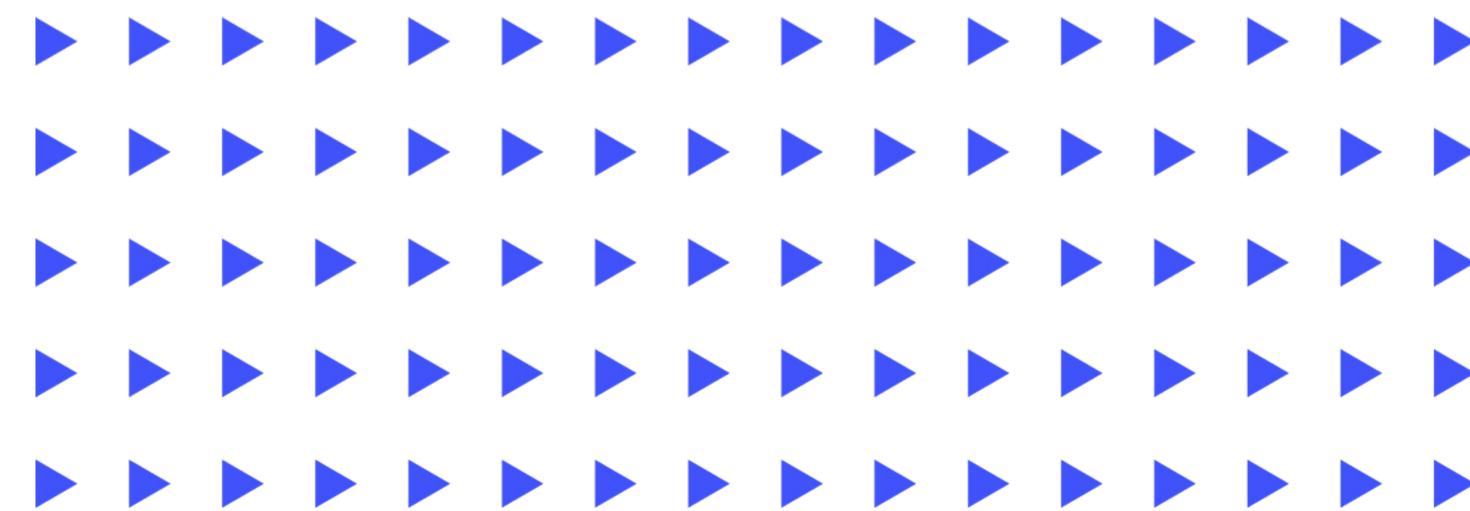
Simple Architecture



_ Part 05



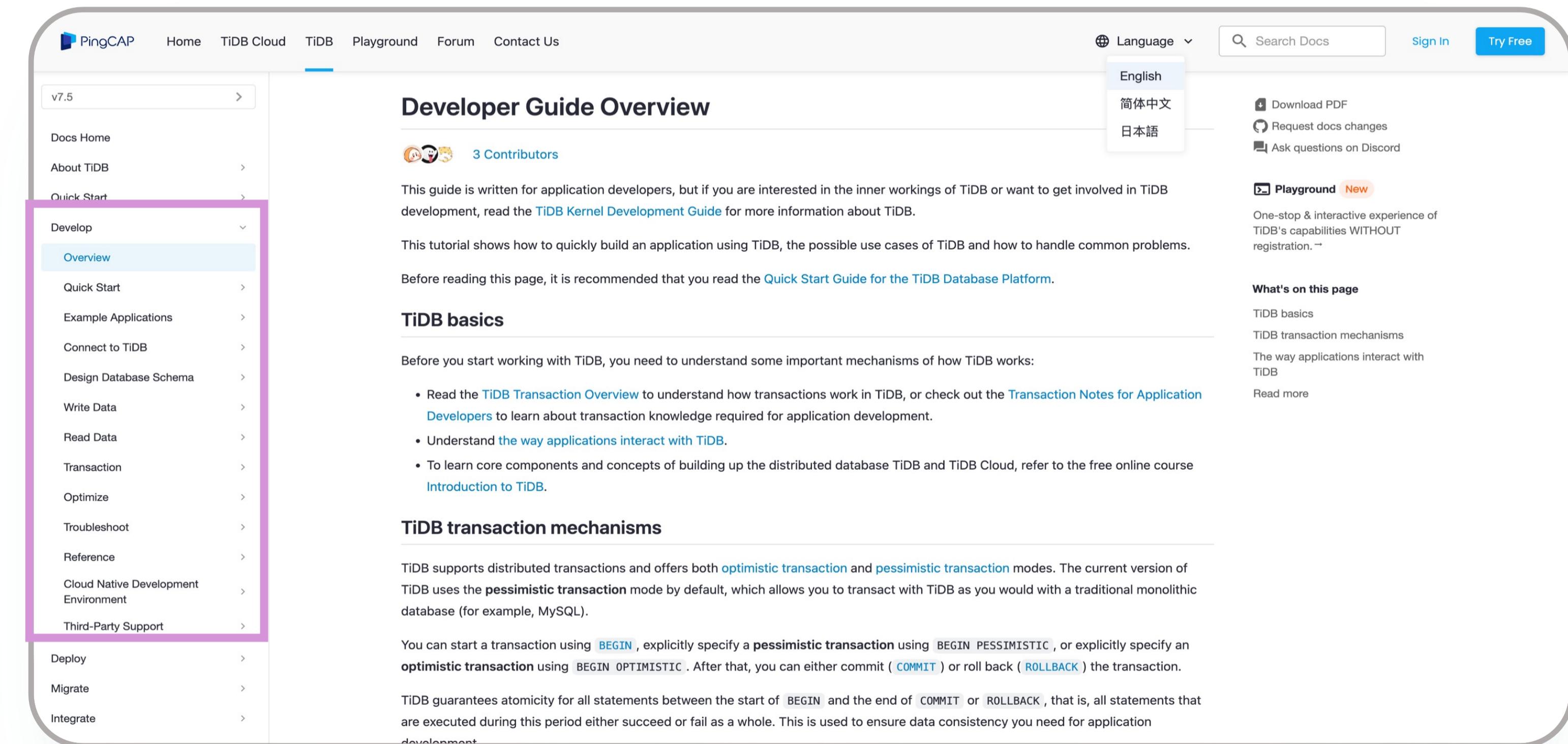
Support from TiDB



Rich Documentation of TiDB

How fruitful?

- English Markdown Documentation : **1276** articles
- Chinese Markdown Documentation: **1098** articles
- And these documents are not AI-translated; they are maintained by our documentation team. The Japanese documents are machine-translated and are therefore not included here.
- Furthermore, our documentation is version-following, meaning you can always find the documents for the latest features.



The screenshot shows the TiDB Developer Guide Overview page. The left sidebar is for version v7.5, with the 'Develop' section expanded and its 'Overview' item selected. The main content area starts with a brief introduction for application developers and links to the TiDB Kernel Development Guide. It then provides a tutorial on building an application using TiDB, mentioning use cases and common problems. A note suggests reading the Quick Start Guide for the TiDB Database Platform before this page. Below this, the 'TiDB basics' section explains the importance of understanding how TiDB works, followed by a list of links to transaction overviews, developer notes, and application interaction. The 'TiDB transaction mechanisms' section details the optimistic and pessimistic transaction modes, the current pessimistic mode, and how transactions work between BEGIN and COMMIT or ROLLBACK statements. It also mentions atomicity guarantees and the use of BEGIN PESSIMISTIC and BEGIN OPTIMISTIC statements.

TiDB's Mature Community

AskTUG.com



The TiDB Community is a collaborative platform for sharing and learning, established by developers, users, contributors, and partners within the TiDB ecosystem. We can freely express ourselves and assist each other in solving problems

96,000+

Pull Requests

24,000+

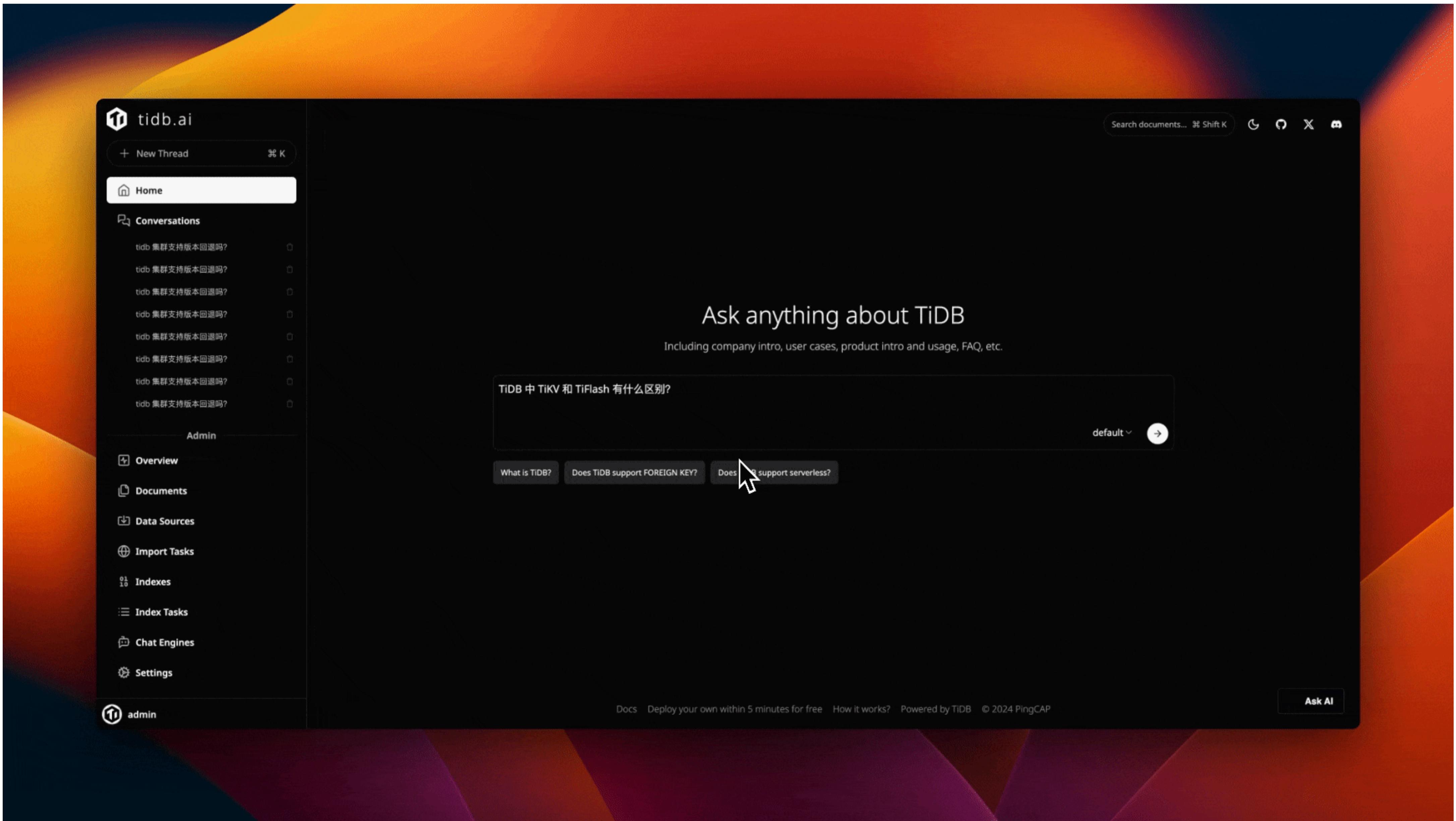
Topics

285,000+

Posts

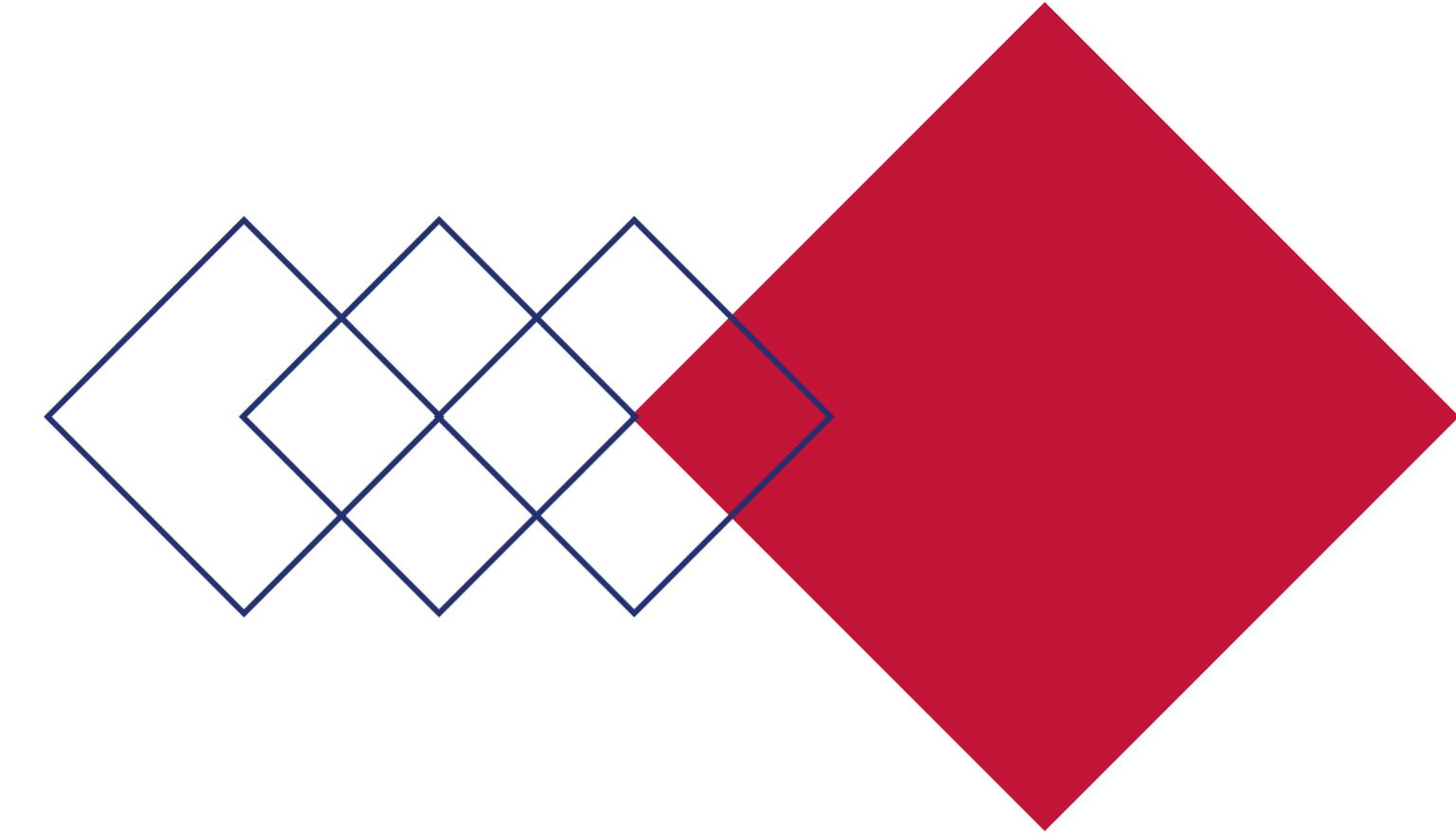
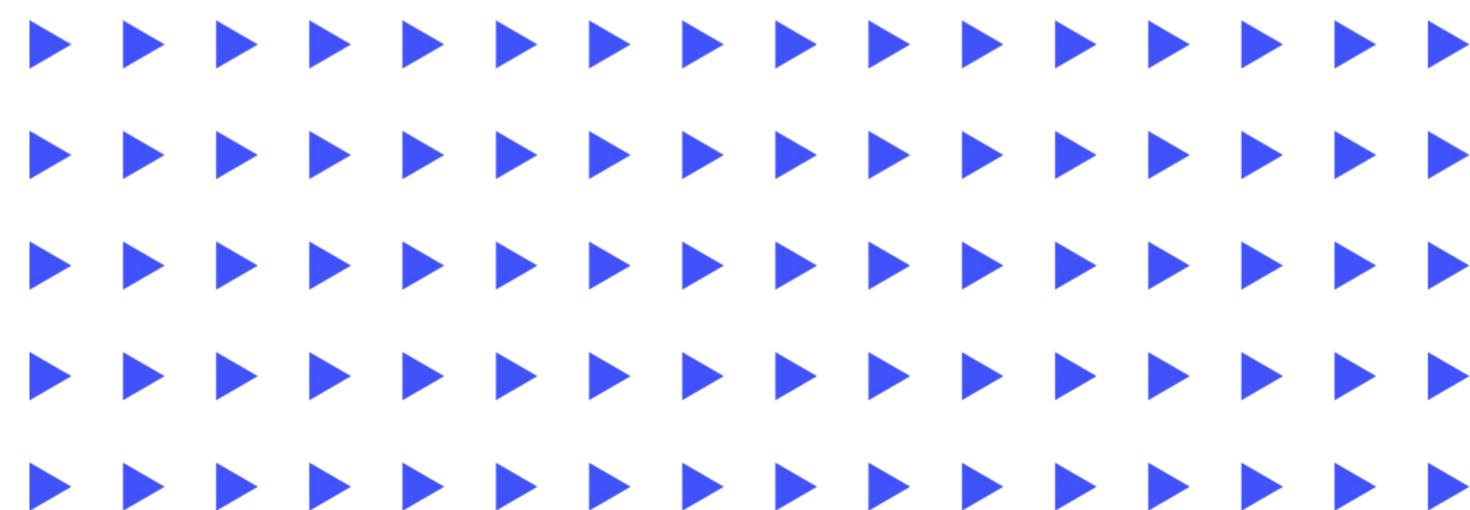
2,300+

Contributors



_ Part 07

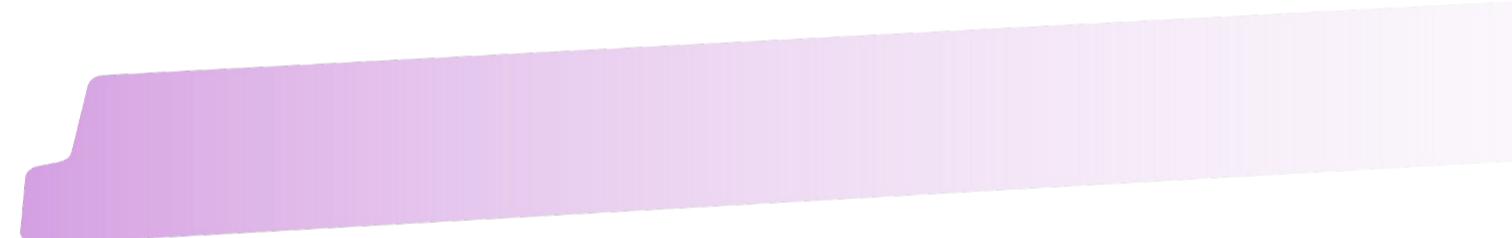
Ending



Take away

Database Tech-Stack	Pros	Cons
RDB	Able to use	Relatively rigid in scalability, not suitable for vector queries, high latency for complex queries
RDB + Vector DB	High performance for vector operations	Requires data synchronization, data consistency issues, complex architecture, different syntax
RDB + Graph DB	More intuitive for graph operations	Requires data synchronization, data consistency issues, complex architecture, different syntax
Self-Deployed TiDB	Unlimited data volume, high availability, analytical capabilities	Lacks vector capabilities, operationally complex, numerous virtual instances
TiDB Serverless	Unlimited data volume, high availability, analytical capabilities, vector capabilities, cost-effective	Under continuous high load, more expensive than self-deployed TiDB

Simplicity is everything!



THANKS



Cheese王琦智

Guangdong Guangzhou



Scan the QR code to add me as friend