

Introduction to TiDB

Go meetup Amsterdam meetup 2022-11-22
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About PingCAP

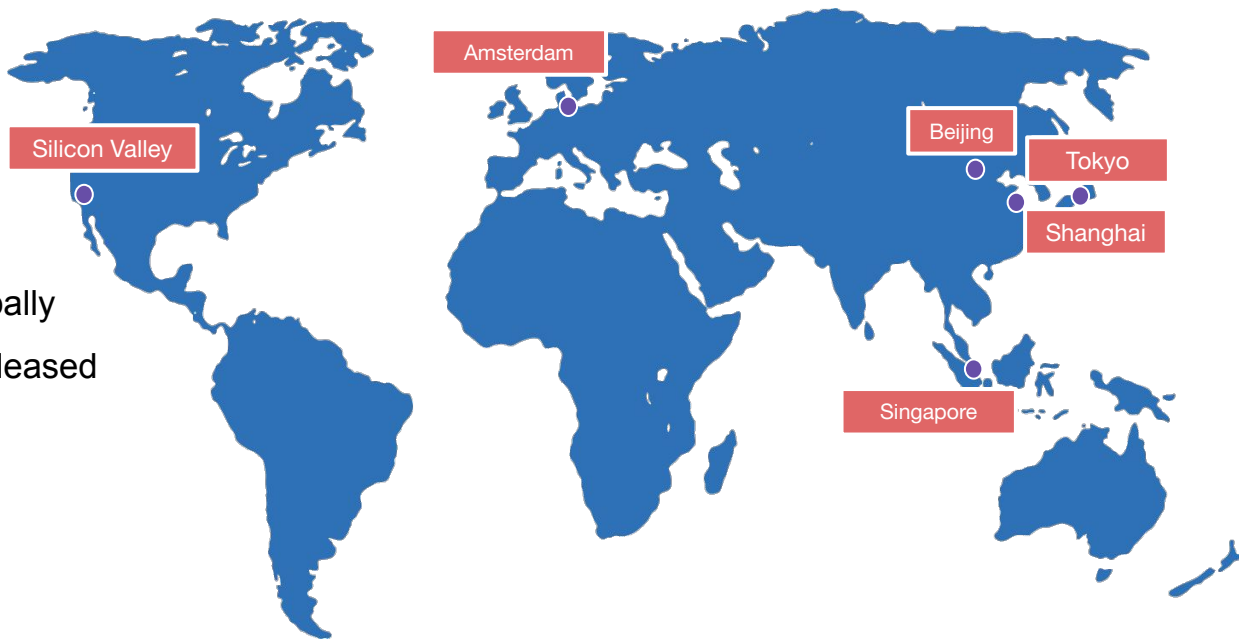
PingCAP, the company behind **TiDB**, provides enterprise-level and cloud-based services and technology for TiDB, so companies can count on TiDB as its core database solution to simplify the database infrastructure and create business value faster than ever.

Mission: Empower engineers to innovate with Speed, Agility, and Scale.



About PingCAP

- 2022.06, 650+ Employees
- 2020.01, TiDB hits 1000 users globally
- 2015.09, First version of TiDB is released
- 2015.04, Starting point



Funded by:

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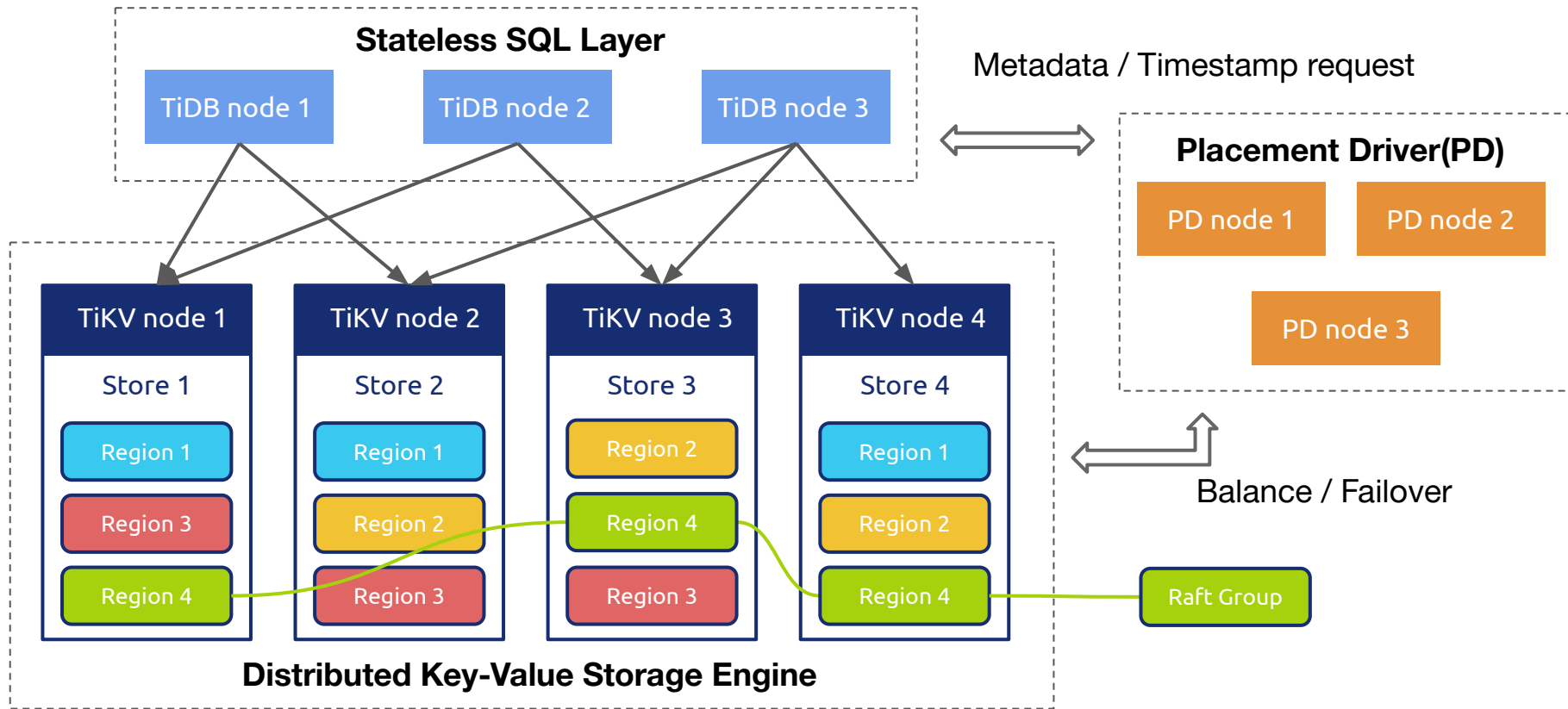
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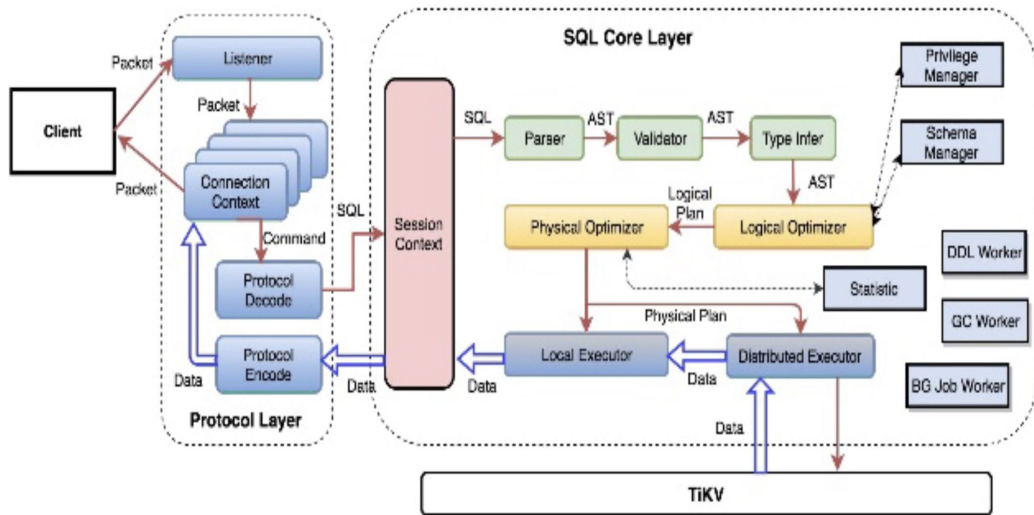
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TiDB Architecture

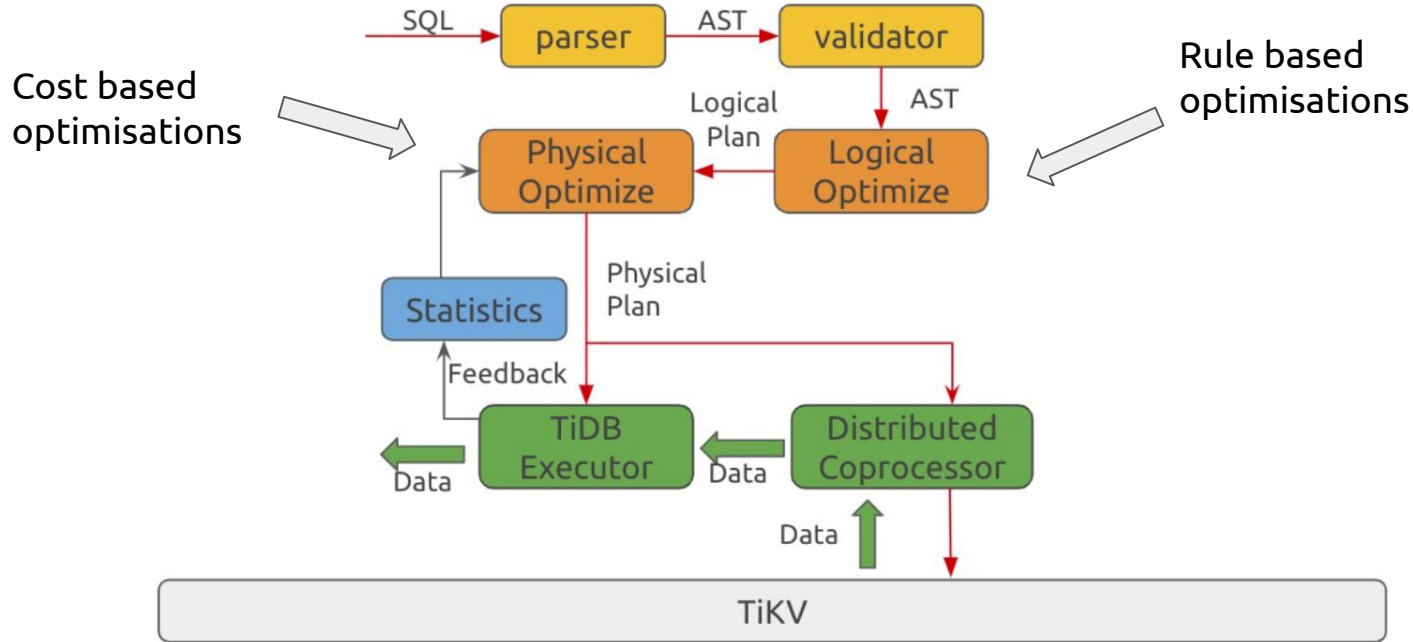


TiDB SQL Layer

- Stateless and does not store data
- Receives SQL requests and processes SQL related logics
- Locates the data in TiKV through the Placement Driver (PD)
- Maps tables to key value
- Exchanges data with TiKV
- Returns results to clients

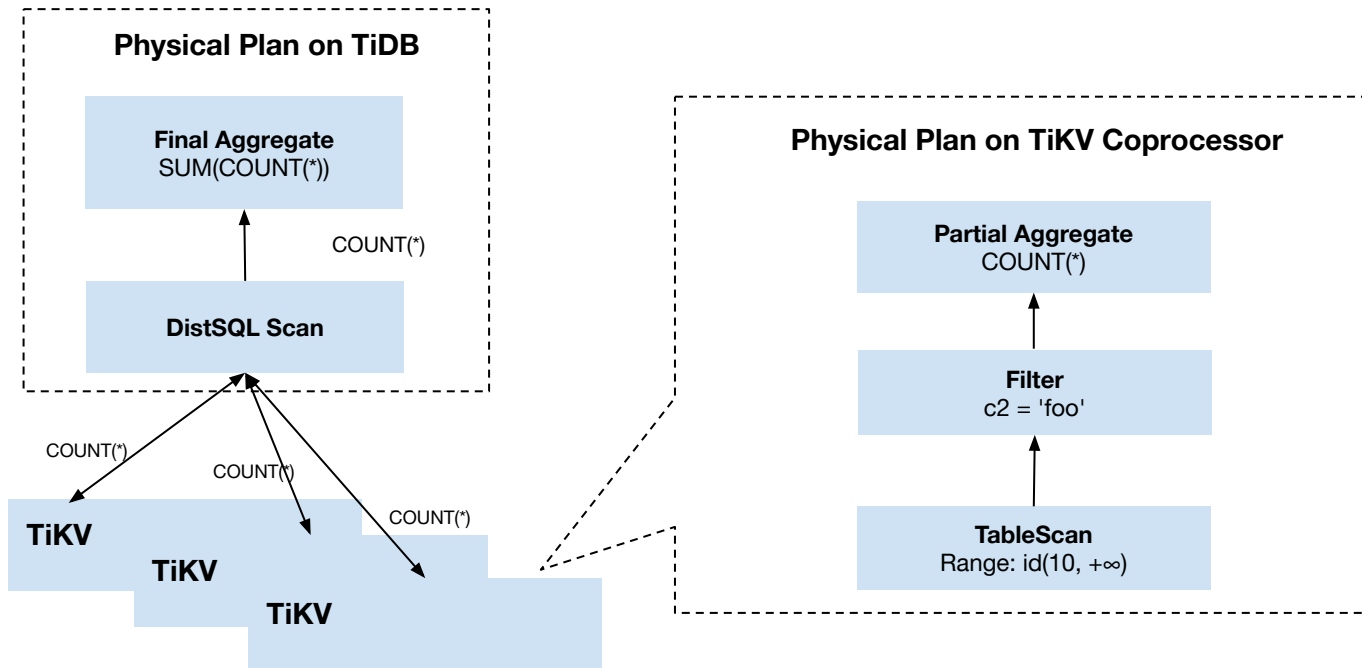


TiDB - SQL Optimization Process



Query Execution/Distributed Computing

```
SELECT COUNT(*) FROM t WHERE id > 10 AND c2 = 'foo';
```



TiDB Data organization

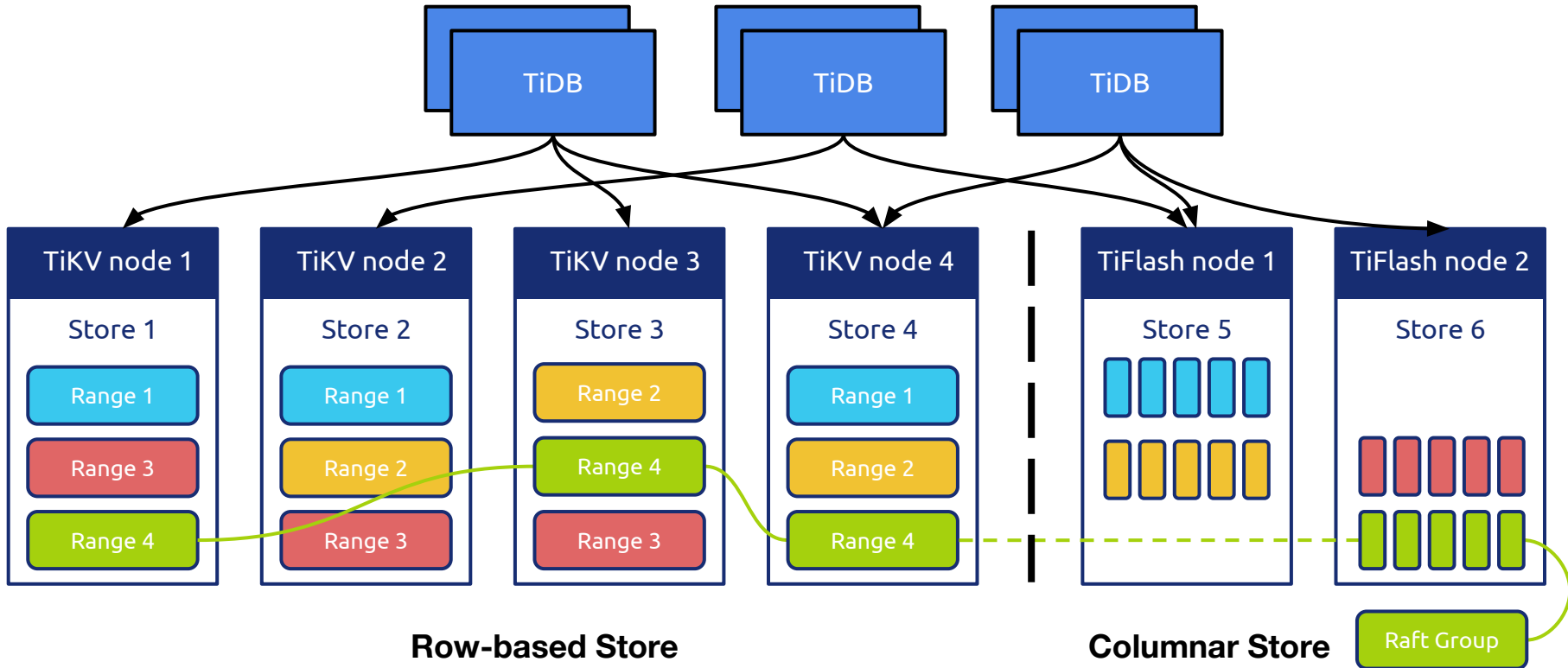
What is a region?

- A table is split into data regions (~100MB)
- Each data region is a bunch of continuous KV pairs
- Data Region meta: [start key, end key)
- PD controls the regions, TiKV stores them

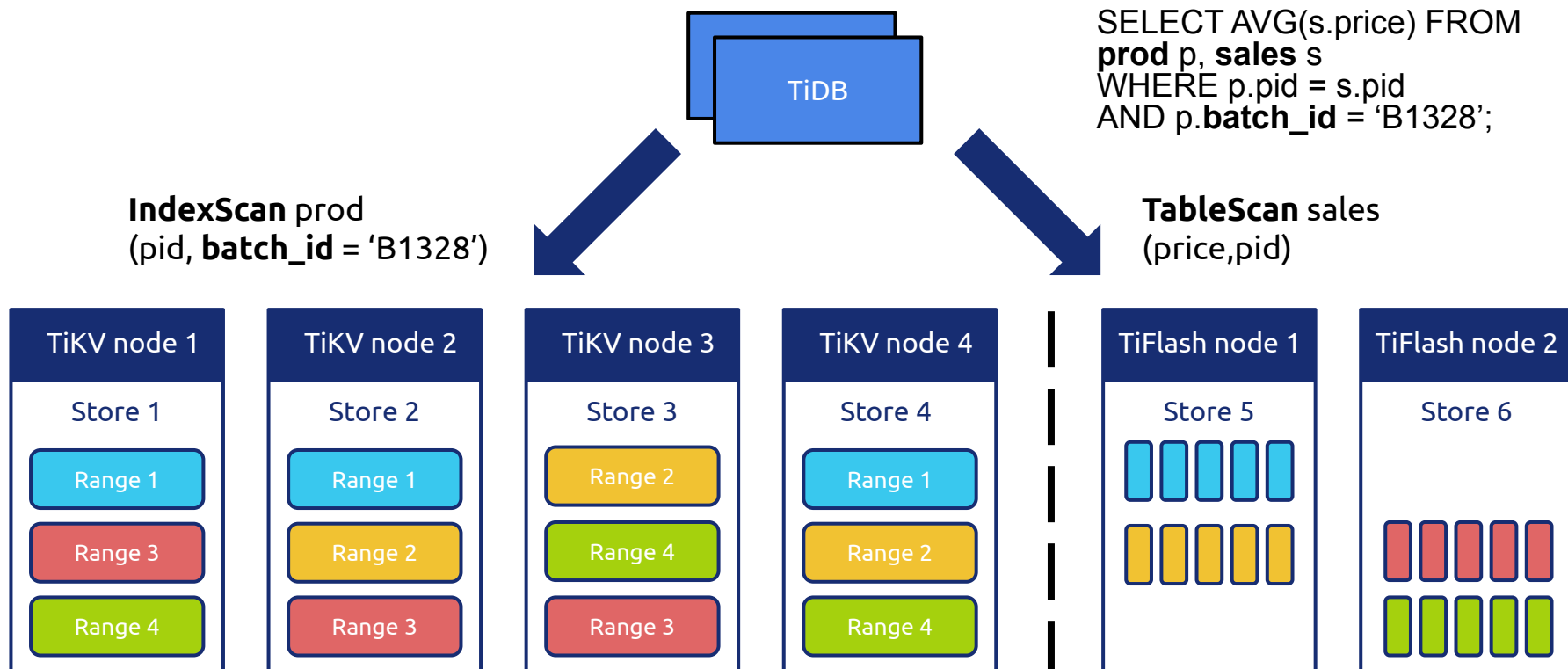


Local RocksDB instance		
t1_r1	data	Region 1
t1_r2	data	
...	...	
t3_i1_9	...	Region 2
...	...	
t4_i6_1	...	Region 3
...	...	
t5_r1(v2)	...	Region 4
t5_r1(v1)	...	
...	...	

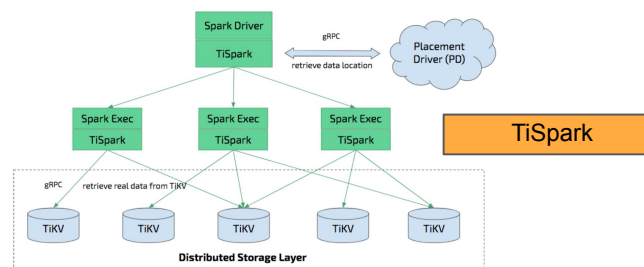
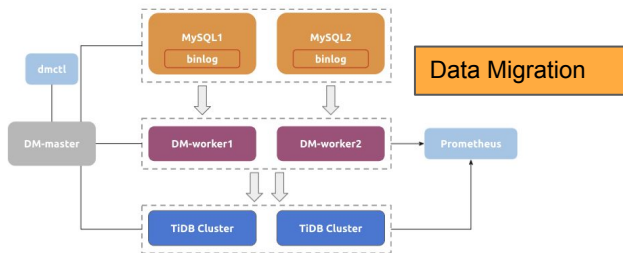
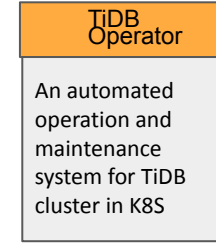
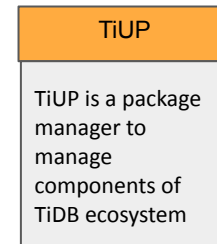
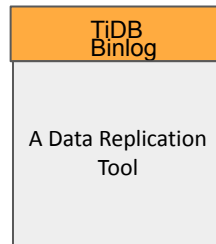
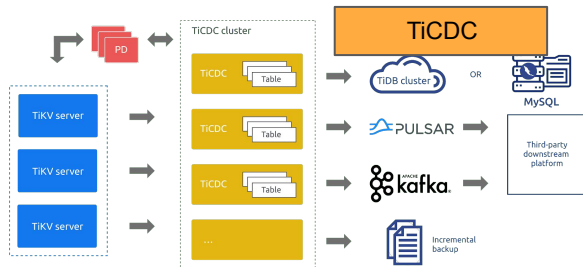
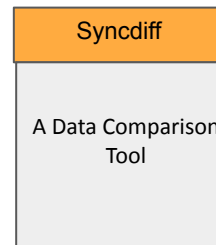
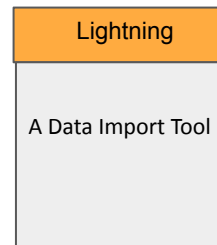
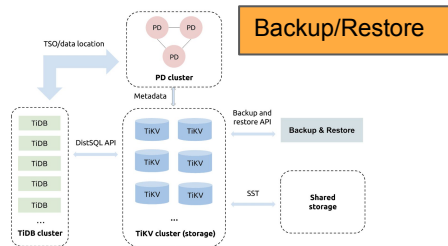
TiDB with Columnar Extension (1/2)



TiDB with Columnar Extension (2/2)



TiDB Tools



time.ZoneBounds in go 1.19

- From a request to added in go time pkg in less than 8 month

Requested Dec 9
Agreement on new API Jan 27
Accepted Feb 2
Patch in May
Set for inclusion in go 1.19 in June

time: add Time.ZoneBounds #50062



Closed

mjonss opened this issue on Dec 9, 2021 · 20 comments



mjonss commented on Dec 9, 2021



Export `Location.lookup()` as `Location.Lookup()` to help finding DST transitions.

Sometimes one want to find the when a zone transition starts or ends, which is already implemented in the non exported `func (l *Location) lookup(sec int64) (name string, offset int, start, end int64, isDST bool)`

Example: I need to correct '2021-03-28 02:30:00' in 'Europe/Amsterdam', which is in the non-existing hour during DST transition between CET and CEST, to the first coming valid time.

I.e. there is a requirement to have a function that takes a date and time in a DST Location and if it is incorrect, correct it to the first following correct date and time.

Setting the time and then reading it back may give a new time that is not at the DST transition, like:

<https://go.dev/play/p/sJdTynZJPT6>

And I don't expect `time.Date()` to change it current behaviour, but if there was an efficient way to find the DST transition one could easily just check the DST transition and correct it one self.



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Demo

- <https://ossinsight.io/analyze/pingcap/tidb>
- Build and run on dev machine?
- Using tiup?

Q & A

- <https://docs.pingcap.com/tidb/stable>
- Slack: <https://slack.tidb.io/>
- Some technical blogs
 - <https://www.pingcap.com/blog/how-i-found-a-go-issue-on-arm-that-crashed-the-database-server/>



Thank you

"It ends only once... everything happens before that, is just progress."