

MemSQL

The Fastest In-Memory Database

MemSQL the company

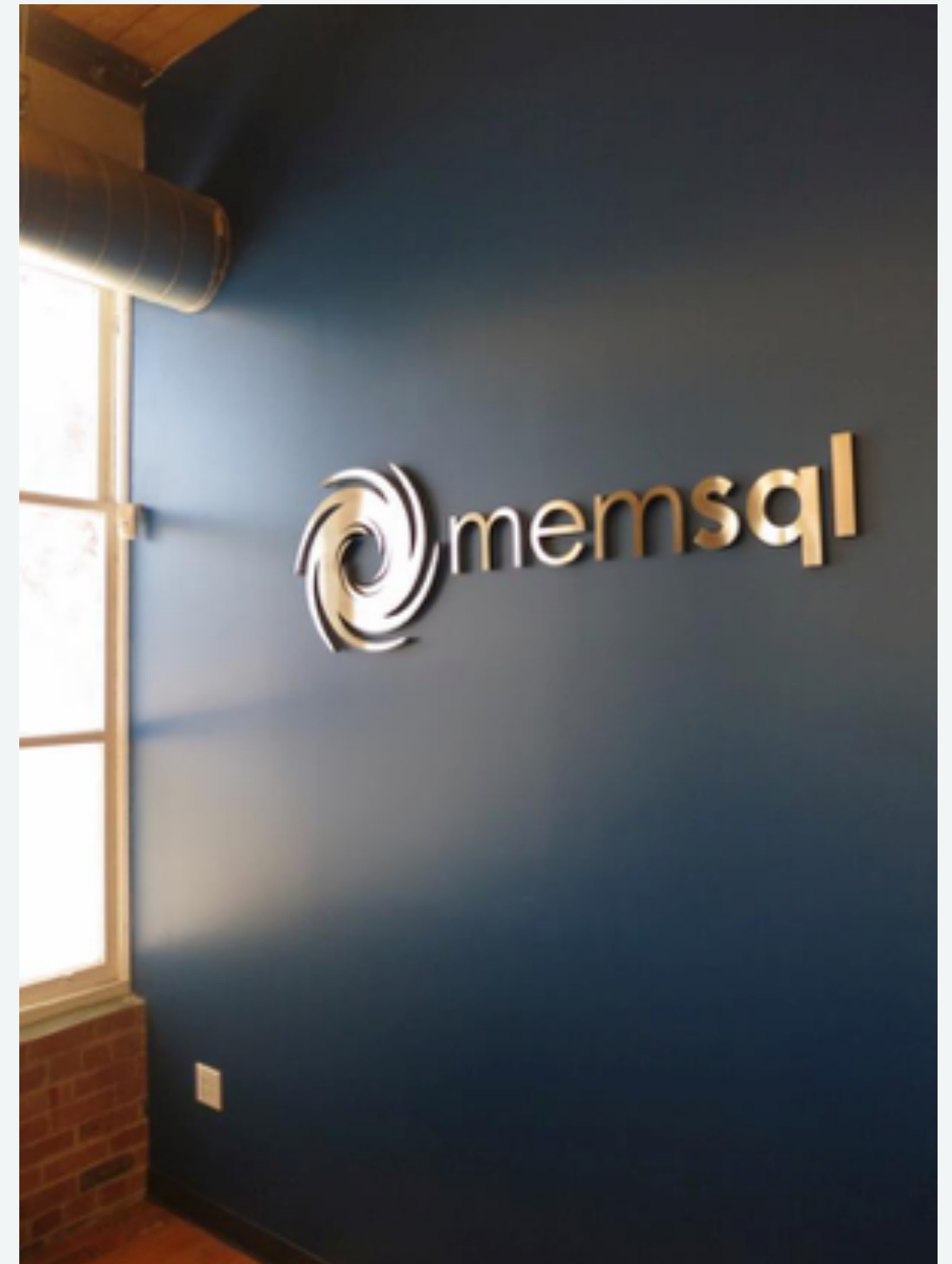
- Experienced leadership from Facebook, SQL Server, Oracle, Fusion-io
- In-Memory, distributed, relational database
- Solving the Enterprise Architecture Gap
- Horizontal scale-out with modern database innovation
- \$50 million in funding

ACCEL
PARTNERS

khosla ventures

IQT
IN·Q·TEL

Data Collective



Going Real-Time is the Next Phase for Big Data



More
Sensors



More
Interconnectivity



More
User Demand

...and companies are at risk of being left behind

Current Data Management Challenges

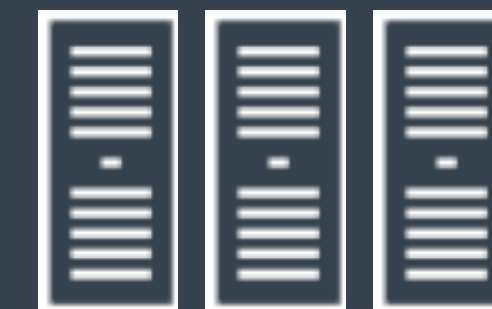
ETL



Batch Processing



Big Iron Appliances



MemSQL the software

- Distributed and Parallel
- Shared-Nothing, Lock-Free
- Data in memory or SSD
- SQL all the way down

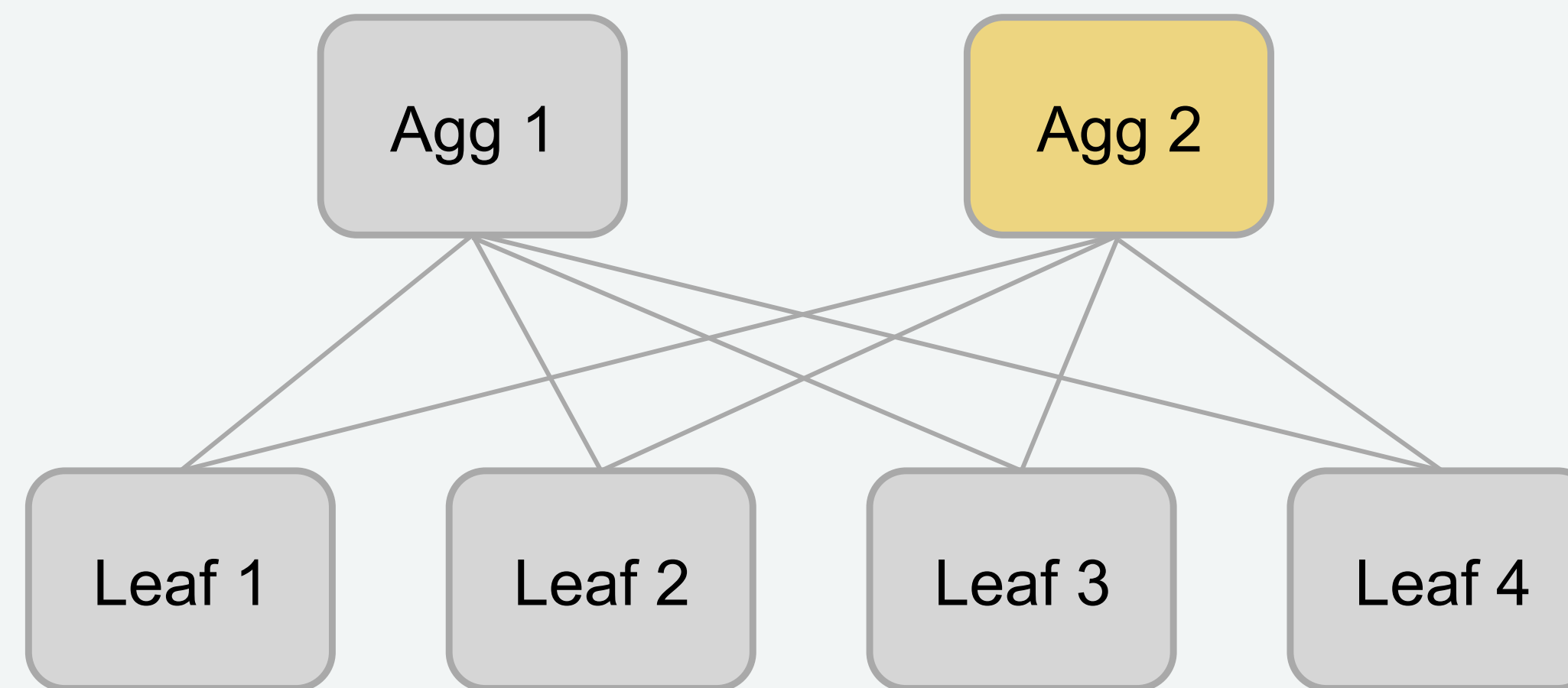
MemSQL Engine: "memsqld"

- Basic scaling unit of a cluster
- A full, independent RDBMS
- 50,000 inserts / sec on wide table
- ~1M inserts / sec on skinny table
- Millions of primary-key lookups / sec



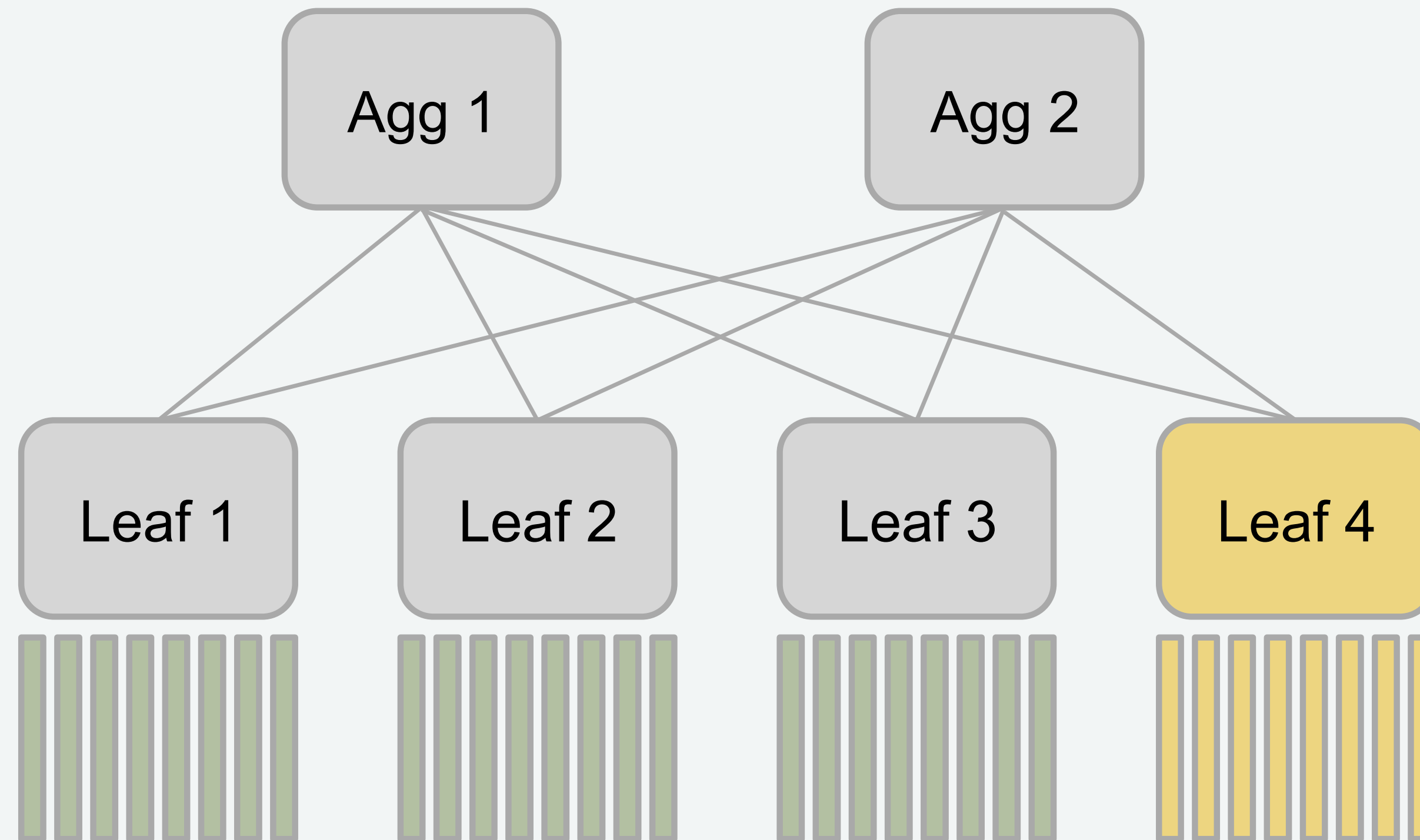
MemSQL

MemSQL Engine: Aggregators Aggregate

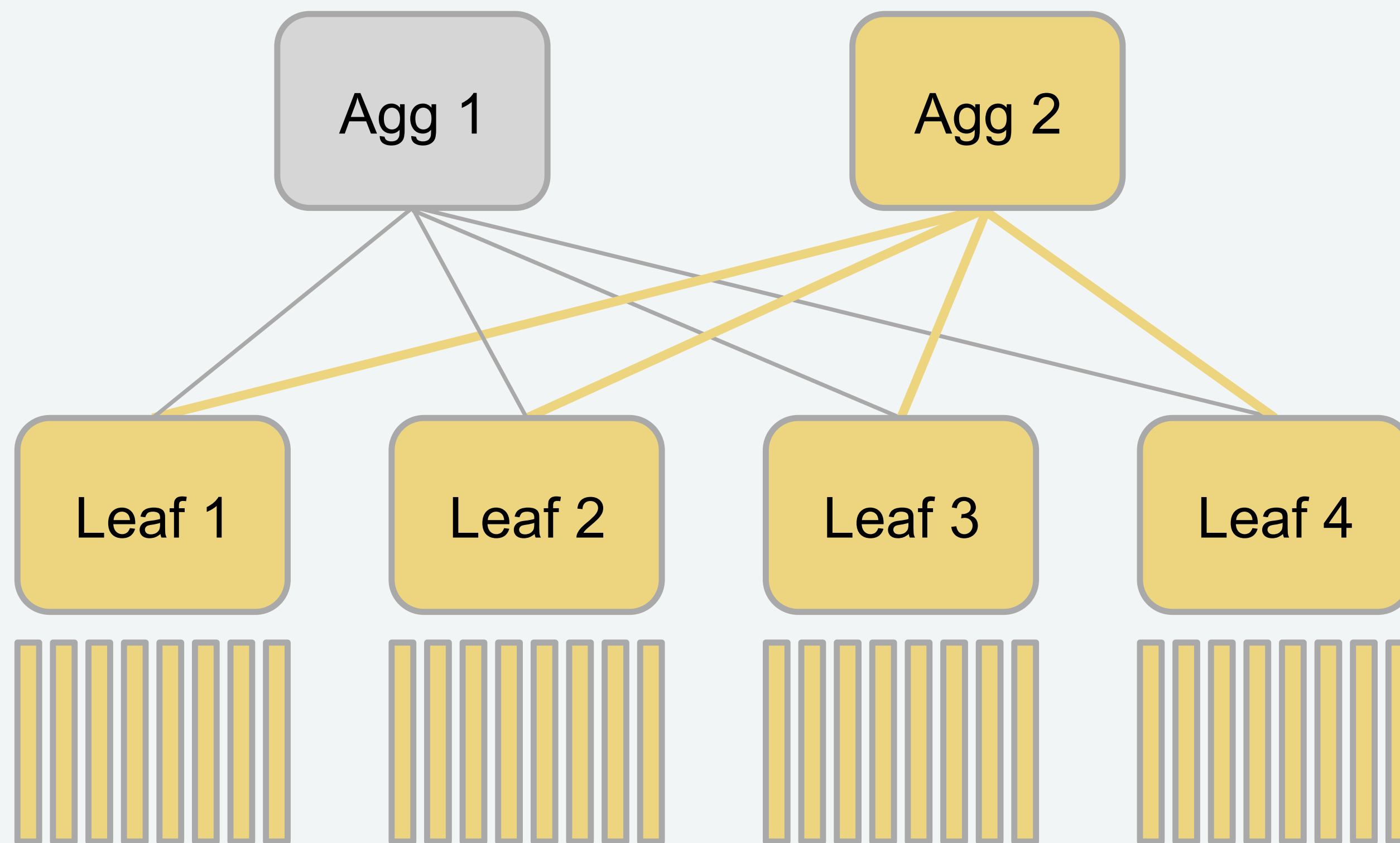


```
memsql@master> select format(count(1), 0) from lineitem;  
+-----+  
| format(count(1), 0) |  
+-----+  
| 266,594,208         |  
+-----+  
1 row in set (0.12 sec)
```

MemSQL Engine: Leaves Hold Data



MemSQL Engine: Sharding and Joins



```
select * from lineitem L, orders O
where L.orderkey = O.orderkey...
```

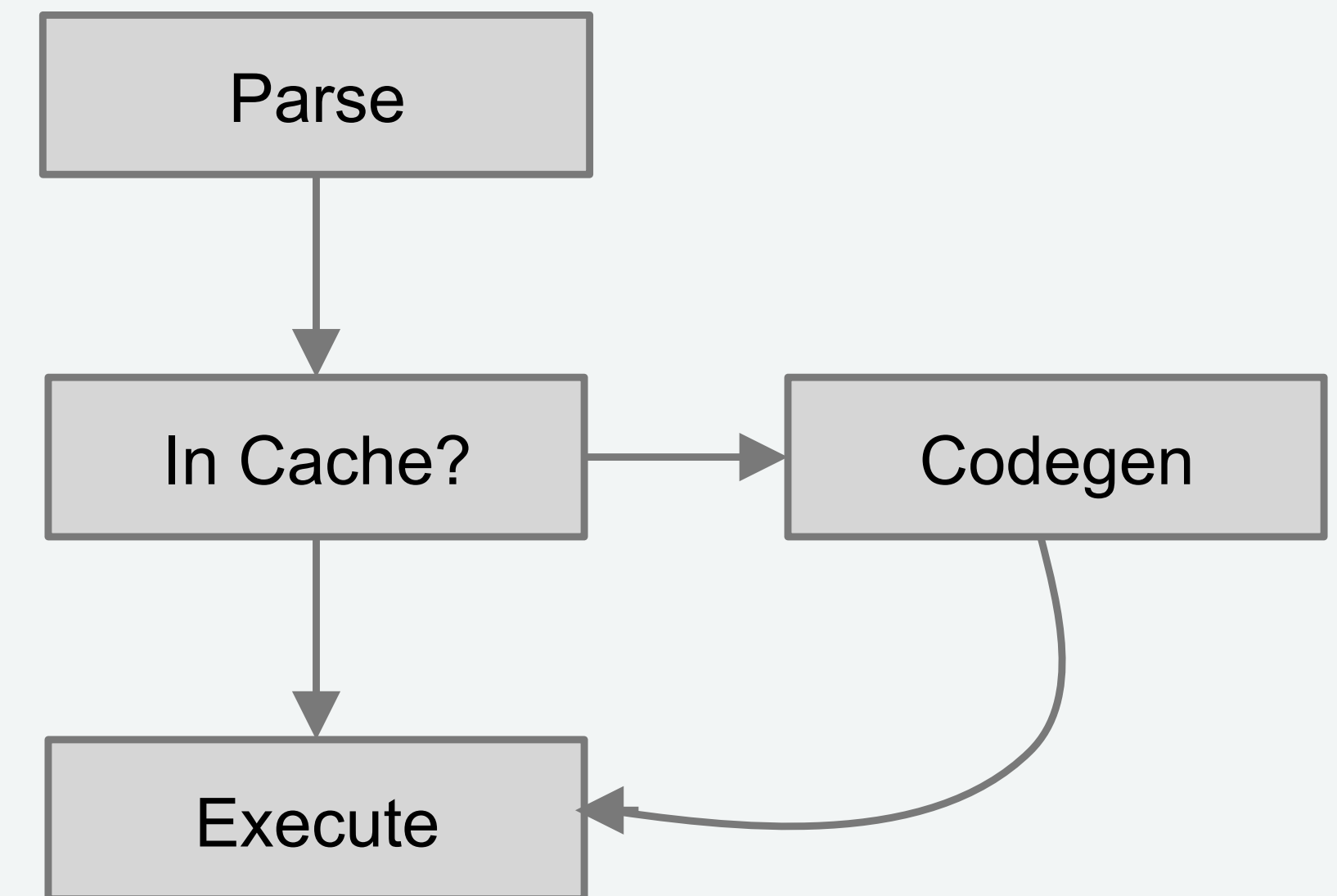
```
leaf1> using memsql_demo_0
select * from lineitem L, orders O
where L.orderkey = O.orderkey...
```

```
leaf2> using memsql_demo_1
select * from lineitem L, orders O
where L.orderkey = O.orderkey...
```

MemSQL Engine: Compiled Queries

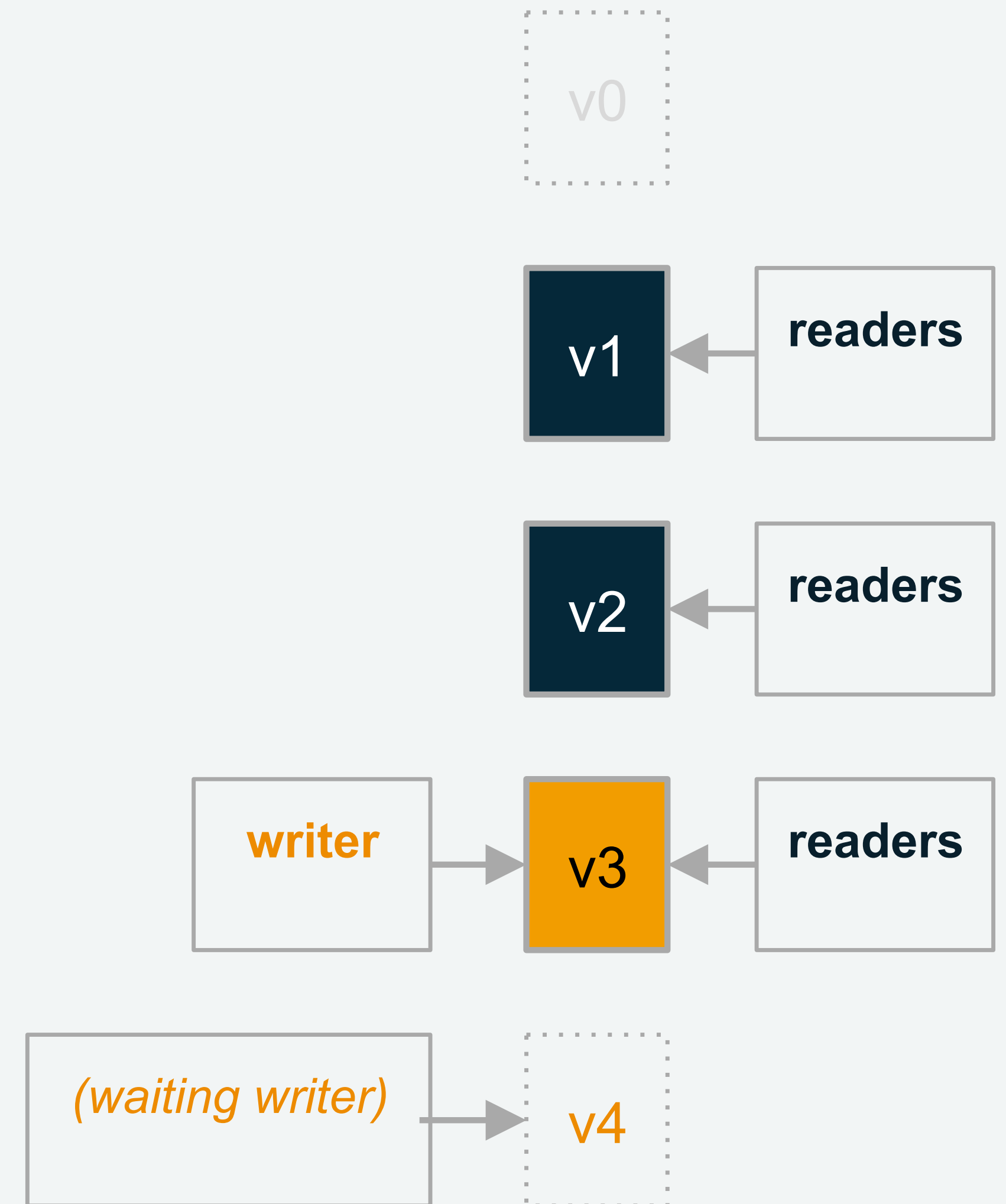
```
select * from foo where id=1234  
and name like '%jingleheimer%';
```

```
SELECT * FROM foo WHERE id = @  
AND name LIKE ^
```



Durability: Transactions (MVCC)

- Every write creates a new version of row
- Old versions get garbage-collected
- Reads are never blocked
- Row-level locking for writes
- Allows online ALTER TABLE!
- Multi-statement transactions



Durability: Logging and Snapshots

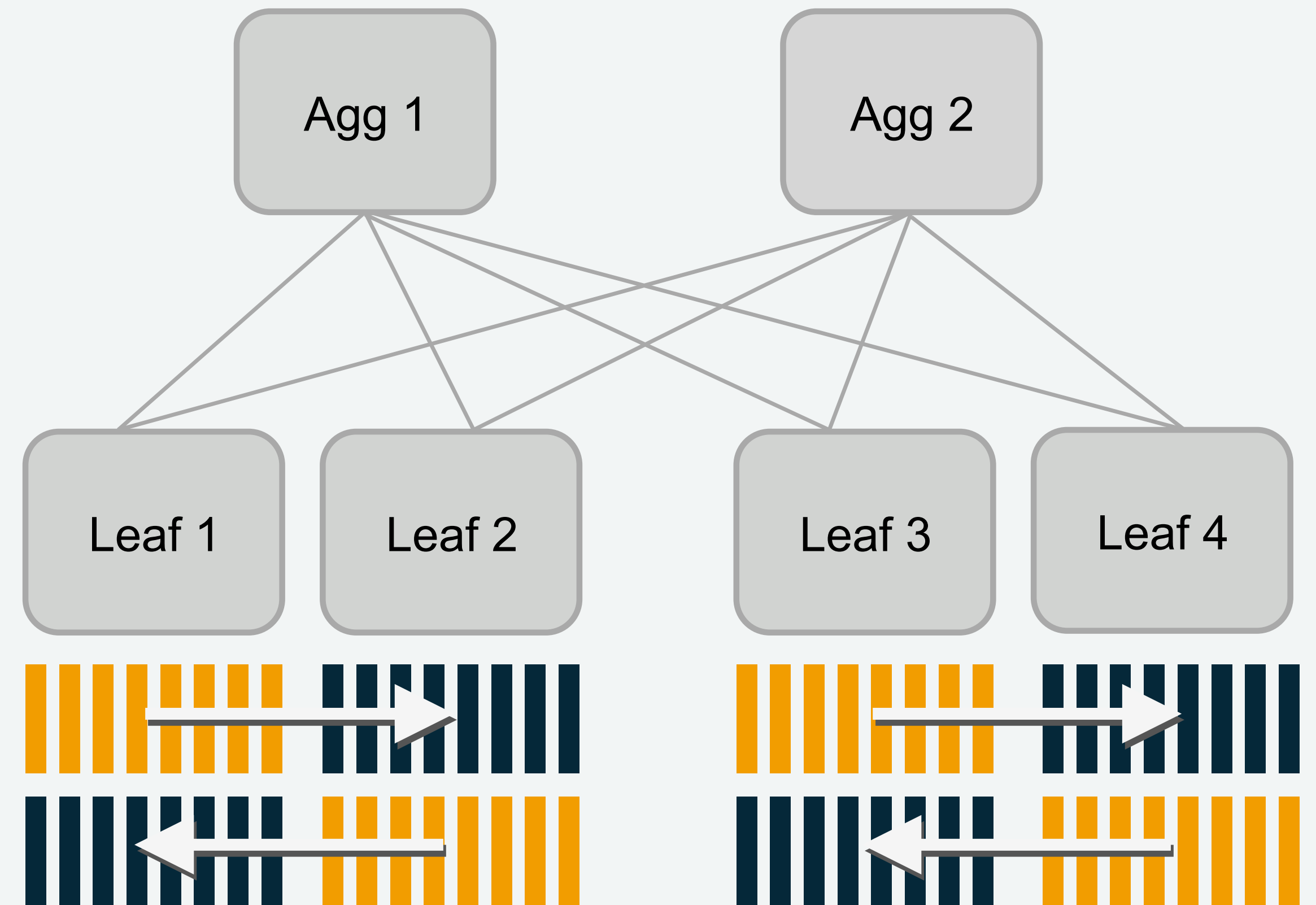
Every write saved to transaction log on disk:
`/var/lib/memsql/data/logs`

Periodic compaction into a snapshot file:
`/var/lib/memsql/data/snapshots`

On restart data is loaded into RAM
Latest two snapshots are kept by default

Durability: High Availability

Leaves are paired up
Partitions replicated async
Automatically fails over
Uses 2X space



Licensing

Community Edition

- Free Forever, Unlimited Scale
- Full SQL features

Enterprise Edition

- Subscription basis, by RAM capacity
- No limit on disk storage
- Enterprise support
- Replication / High Availability

DEMO