libTSDB
The library that powers Prometheus 2.0

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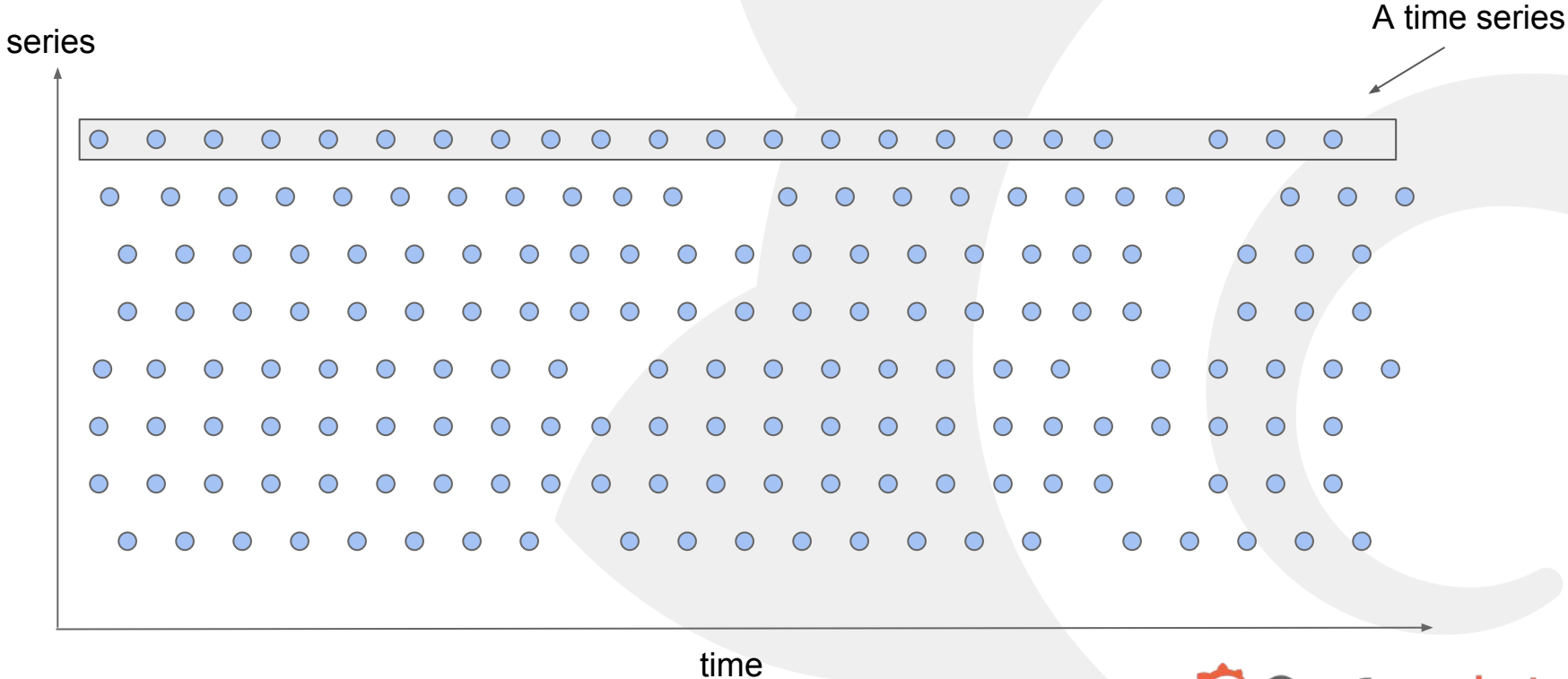
Prometheus (2.0)

- A monitoring system with an embedded **time-series database**

- Part of **CNCF**

- Started in 2012, public announcement in 2015

- 1.0 in July 2016, 2.0 in November 2017

- 1.0 was great! 2.0 is *better!* Mainly due to TSDB

Embedded Time-Series Database

```
(t0, v0), (t1, v1), (t2, v2), (t3, v3), ....
```

Embedded *Time-Series* *Database*

series

A time series

time

Embedded Time-Series Database

```
weather_celcius{city="berlin", sensor="gorli"}

weather_celcius{city="berlin", sensor="kreuzberg"}

weather_celcius{city="copenhagen", sensor="bella"}

...
```

Embedded Time-Series Database

```
weather_celcius{city="berlin", sensor="gorli"}

weather_celcius{city="berlin", sensor="kreuzberg"}

weather_celcius{city="copenhagen", sensor="bella"}
```

Select: weather_celcius

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Embedded Time-Series Database

weather_celcius{city="berlin", sensor="gorli"}

weather_celcius{city="berlin", sensor="kreuzberg"}

weather_celcius{city="copenhagen", sensor="bella"}

Select: weather_celcius{city="berlin"}

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Embedded Time-Series Database

- Store and retrieve time-series

- MILLIONS of them!

- Okay, why not MySQL/Cassandra/(insert new hot-db)?

- Purpose built, hence FAST! And SMALL!

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Embedded Time-Series Database

5 million active time series
30 second scrape interval
1 month of retention

166,000 samples/second
432 billion samples

8 byte timestamp + 8 byte value ⇒ **7 TB** on disk

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12x Savings with TSDB!

Embedded Time-Series Database

- Crash Resiliency using a WAL

- Granular deletes

- BACKUPS!

- In Go, as a library! Ultra simple, streaming API!

- Battle tested, Prometheus uses it!

Embedded Time-Series Database

https://github.com/prometheus/tsdb

Embedded Time-Series Database

- Prometheus imports it!

- Well documented and already used in other projects!

- More features being added! Well maintained!

- Talk to us, contribute! Use it!

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Join the deep-dive!

Thursday, May 3 • 14:45 - 15:20

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