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), ....

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Embedded \textit{Time-Series} Database

A time series

- time
- series
Embedded Time-Series Database

weather_celcius{city="berlin", sensor="gorli"}
weather_celcius{city="berlin", sensor="kreuzberg"}
weather_celcius{city="copenhagen", sensor="bella"}
...

Grafana Labs
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
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"}
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!
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
**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 $\Rightarrow$ 600 GB on disk

- 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

No description, website, or topics provided.

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729 commits 24 branches 0 releases 29 contributors

mattbostock and brian-brazil db: Match comment case to function name (#316)
chunkenc fix some comments typos (#315)
chunks fix megacheck issues: os.SEEK_SET is deprecated: Use io.SeekStart, io...

Latest commit def6e5a 18 days ago

Create new file Upload files Find file Clone or download
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!
Join the deep-dive!

Thursday, May 3 • 14:45 - 15:20

Audi 11 + 12