


Prometheus histograms & Grafana

<<SUBTITLE>>

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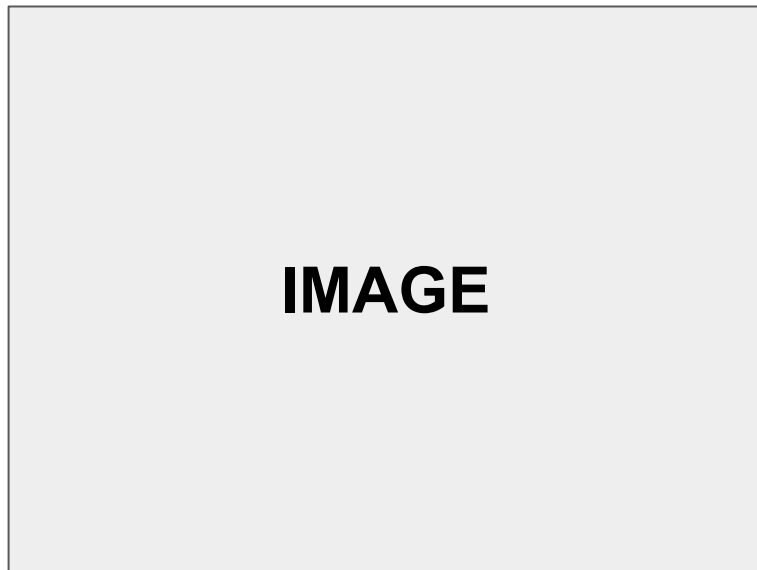
Who am I?

- I'm Štefan Šafár
 - I work on the CDN @ Showmax
 - I hunt speed bumps
 - I fell in love with Prometheus in 2015
 - We deliver tens of gbit/s in ZA
 - ... TODO ...

SPEAKER HEADSHOT

What are we Talking About?

- <<Topic of the talk>>
 - <<Detail 1>>
 - <<Detail 2>>
 - <<Detail 3>>
 - ... etc.

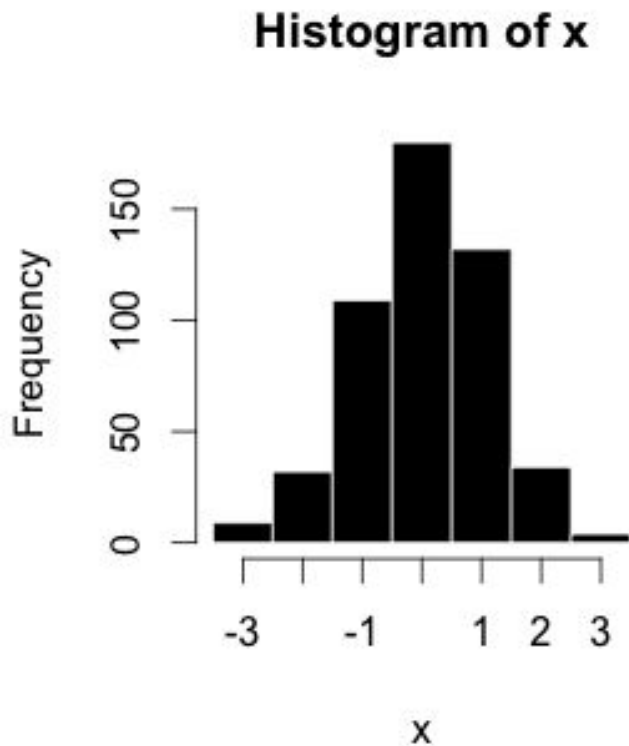


My assumptions about you

- Know Prometheus
- Know Prometheus exposition format
- Use Prometheus or at least toyed with it
- Instrumented a service (maybe)
- Understand code

Histograms

- “Accurate representation of the distribution of numerical data”
- Frequency of values in a dataset
- Distributed into buckets



Histograms in Prometheus

TODO: example of prometheus data - le="value"

Histograms vs summaries

- Histograms

- Buckets in advance
- Quantiles computed later server-side
- Light on the client CPU
- Stores a lot of data on the server

- Summaries

- Quantiles in advance
- More accurate quantiles
- No adjustment / computation later
- Might be heavy for the client CPU - sliding window

Histogram example

TODO: Example of SLA computation for histogram

Summary example

TODO: Example of SLA computation for a summary

Histogram buckets

- Default buckets - TODO
- Great starting point, not ideal in a lot of cases
- Need to think about the distribution of your data
- Keep in mind corner cases and SLA
- Cumulative wire format

Histogram pitfalls

- `histogram_quantile`
- 99.9 percentile for `rate(X)` values
- TODO: example (live demo!)

LIVE CODING YAY

- Show smokeping, describe what it does
- Show fping output
- Parse the output, show how the data is being measured continuously
- Normalize to seconds
- Show prometheus, let the stuff grab data, continue with Grafana
- Add random delays - Change from cable to LTE/3g?

Grafana - histograms

- Histograms
- Heatmaps - histograms over time
- Only in versions 4.3+
- Promql histogram_quantile

Grafana - Elasticsearch histogram

- Fancy if you ~~need~~ want accurate data
- Basically the same as Kibana
- Only need one website to ~~rule~~ graph them all
- TODO: EXAMPLE FOR ELASTICSEARCH GRAFANA

Grafana DEMO

Falloff algorithm

Falloff coefficient

Color schemes

Pluses and minuses

Summary

TODO

THANK YOU!

Get in touch!

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<<Showmax Contact>>