



# From Cardinal(ity) Sins to Cost Efficient Metrics Aggregation

Paige Cruz, retired SRE  
**open source observability advocate**





CFO looking at the  
oil bill



## 374 How on earth do people deal with ██████████ billing practices?



Rant

We're dealing with a \$30k overage for the past month, and there was no warning at all until the account manager let us know it was coming. They've reduced it, but it's definitely not an AWS-style waiving of the full amount.

Even now, it's not actually apparent that we're going to be charged that much, unless we go through and calculate rates and usage ourselves. It's just insane.

How do people actually deal with this business risk? This was a single developer writing a single query to create what they thought was a custom metric, that turned out to be a custom metric per unique URL.





Natan Yellin • 2nd

Add Robusta.dev to Prometheus for ⚡ Kubernetes...

1w • Edited •

+ Follow

Why does the [REDACTED] website brag that you can "Track tens of thousands of infrastructure metrics out of the box"

This is not a feature. 10,000 metrics to look at is worse than 100 metrics, not better.



chronosphere.io

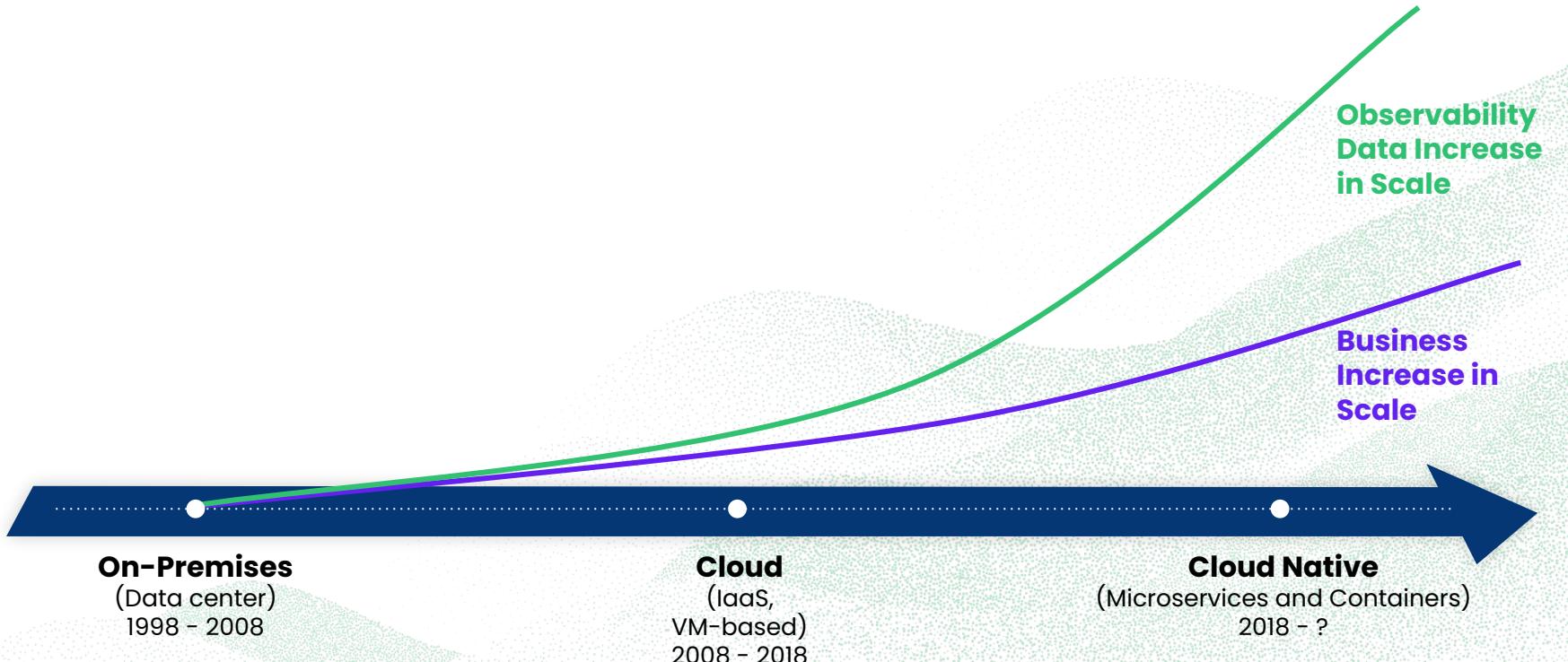
While \$65 million is a shocking amount — shocking enough that the news quickly circulated on Twitter — bills in the ten million range are not unusual for traditional observability companies, said **Shahar Azulay**, CEO of observability alternative provider Groundcover.



# Cloud Native Observability bills are **outrageous**



# Cloud Native Data Growth



Most recently it was looked at to help monitor a small Kubernetes test cluster. 3 nodes. Now the base rate of \$18/mo is just fine... except now they charge \$1/mo/container past 10 containers per host. Because K8s (depending on how you install it) runs a bunch of little containers handling various back end things, you might not deploy anything to the cluster and still be WAY over that 10 container limit. In our case it came out to like \$200/mo to monitor 3 nodes - that were no where near fully loaded.

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- *Hacker News thread*





# Data volume

*Experiment:*

- *Hello World app on 4 node Kubernetes cluster with Tracing, End User Metrics (EUM), Logs, Metrics (containers / nodes)*
- *30 days == +450 GB*

# Mighty Metrics

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1 in 10 metrics are  
actually directly  
queried

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- ServiceNow

# Contributing Factors to the Metrics Bill

# of containers and infra components	Metric Granularity	Retention Window	Cardinality
How many <i>things</i> you're monitoring	How often each metric is scraped	How long you keep the data	How many unique combos of dimensions on metrics



## # of containers and infra components

Cost of monitoring can be a factor in determining how quickly to deprecate or sunset features/services/environments

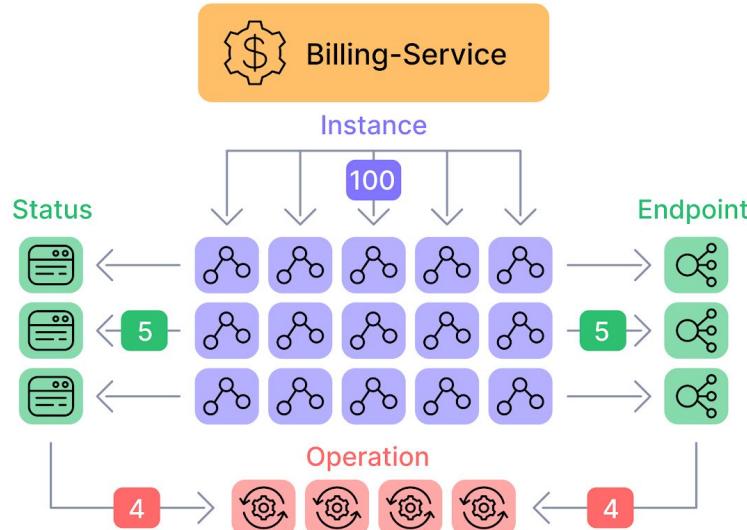
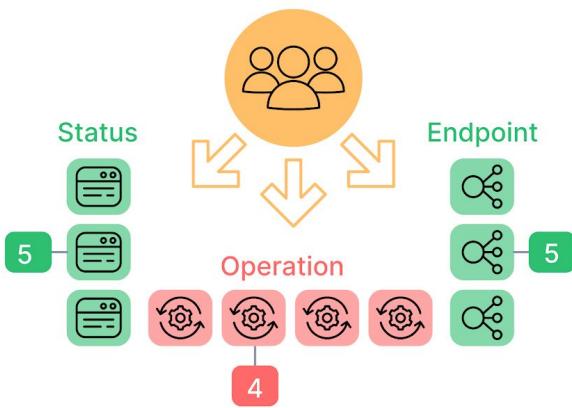
# Metric Granularity

Emission time = adjust `scrape_interval` (from 10s samples -> 30s samples)

Ingest time = aggregate

Over time post-storage = downsampling

# Aggregation: Roll Up



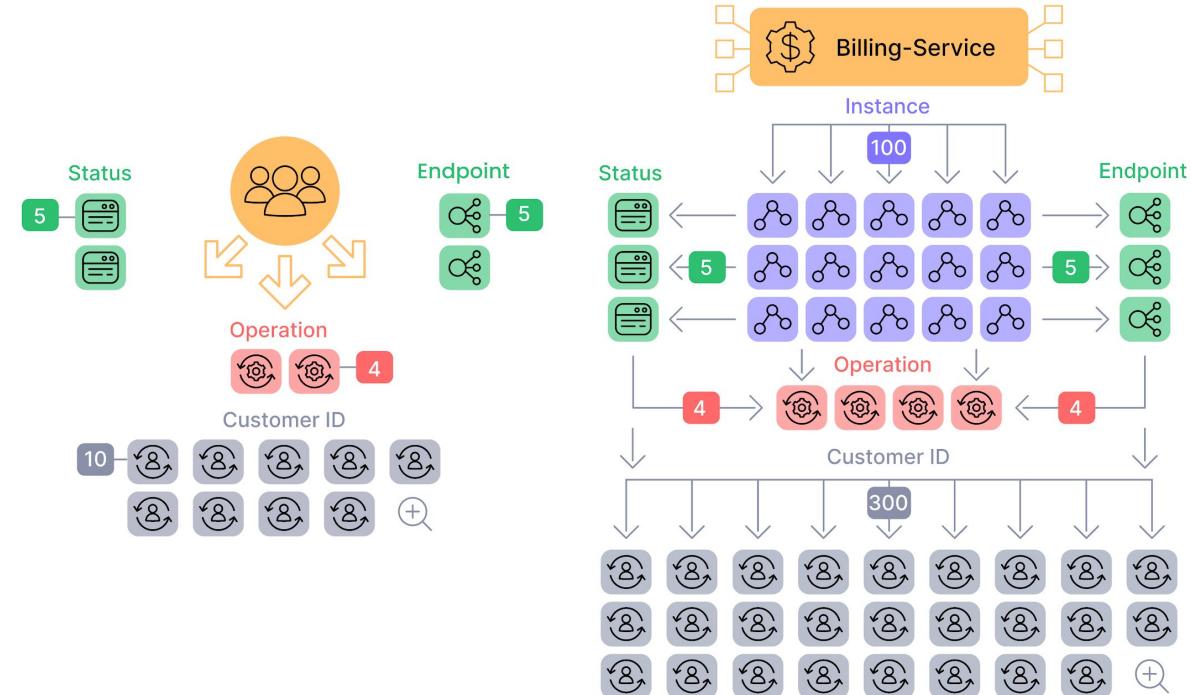
# Retention Window

For *operational* metrics.....most (99.9%) of queries do not pass **7 days** but average retention at original granularity ranges from 2-4 weeks

# Dropping Data

Low value tags or entire metrics should be dropped as early as possible

# Cardinality



# Auditing Your Metrics

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# What is the *value* of this metric?

- 
- You, when auditing metrics

# Auditing Your Metrics

- Scope what your team is responsible for
  - filter queries with **team:YOURS**
- Identify easy wins. Metrics that aren't
  - In a monitor definition
  - Directly queried by end users
  - Powering charts for *visited* dashboards
- Identify labels that are unnecessary
  - e.g. prometheus instance label or instance\_type
- Share your successes!





CFO looking at the  
cost efficiency of  
metrics

# Resources

- [How Gloo uses the OTel Collector to drop metrics/labels and provide the Minimum Metrics Set](#)
- [How to drop and delete metrics in Prometheus](#)
- [How can recording and data roll-up rules help your metrics?](#)
- [Observability is Too Damn Expensive – DevOpsDays London](#)

# Catch up with me:

- [Rescuing On-Call Engineers](#)  
(send your manager)
- KubeCon [OTel 101: Let's Instrument!](#) (tracing) workshop
- [There's No Place Like Production](#) Conf42 Incident Management

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# Q&A

