

# Elastic-Monitoring using Grafana @



PlayStation™



- **Senior Software Engineer @ Sony Interactive Entertainment (PlayStation).**
- An active contributor to **Grafana**.
- Project initiator for **wizzy** – a user friendly **CLI tool for GRAFANA**

GitHub - <https://github.com/utkarshcmu>

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It's Story  
TIME

# PlayStation Outage!

This service is currently undergoing maintenance.  
(E-820001F7)

OK

## Problems at Playstation Network

**Published:** 10/09/2015 3:22 p.m. **By:** downdetector.com

Playstation Network is having issues since 3:22 PM EDT. Are you also affected? Leave a message in the comments.

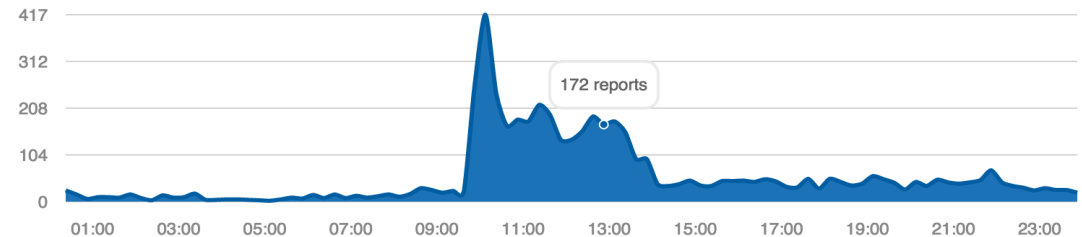
### Most reported problems:

- Sign-in (67%)
- Game play (16%)
- Playstation Store (15%)



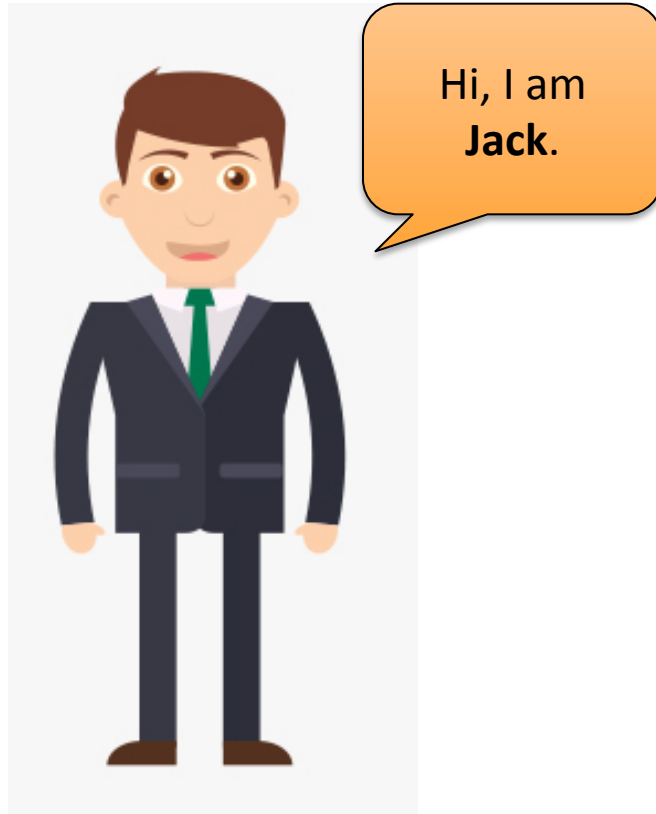
PLAYSTATION®Network

### Oct. 9, 2015 Status overview





# Sometime 2 years back...



# POC on Monitoring



## Requirements:

- 50,000 unique metrics from one source
- Data points every minute
- Roughly about **72 million data points per day**
- Data retention 60 days
- User friendly UI with possible customization

# Choosing the technology!



# POC

## Design & Architecture



# POC Completed!



**Mission accomplished!**

1 metrics source  
50,000 unique metrics  
72 million data points per day

# Metrics Onboarding



## Team 1 Requirements:

- 100,000 unique metrics
- About 200 million data points per day

## Team 2 Requirements:

- 400,000 unique metrics
- About 600 million data points per day

## Team 3 Requirements:

- 500,000 unique metrics
- About 2 billion data points per day

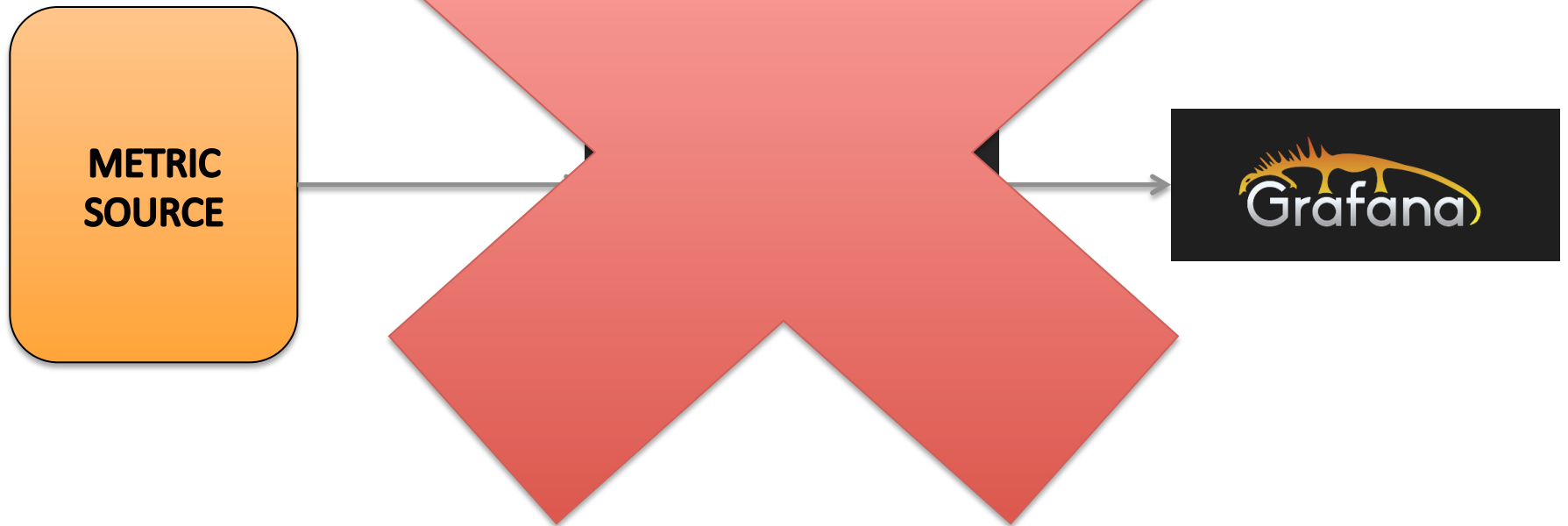
## Team 4 Requirements:

- 800,000 unique metrics
- About 5 billion data points per day

And more.....

# POC

## Design & Architecture





# How to Scale?



## Challenges:

- Multiple teams
- Millions of unique metrics
- Above 10 billion data points a day
- Process 3 million logs every minute and generate metrics
- Reprocessing of metrics and logs if needed
- **Provide real time monitoring for all of the above using GRAFANA!**

Should he continue with Graphite?

Should he ask to reduce metrics or datapoints?

How to dynamically scale Graphite?

Does Grafana support other datasources?

OpenTSDB / InfluxDB / KairosDB / Prometheus?

Support scaling Infrastructure to support variable load of metrics?

# Strategy



## Team 1 Requirements:

- 100,000 unique metrics
- **About 200 million data points per day**

## Team 2 Requirements:

- 500,000 unique metrics
- **About 2 billion data points per day**

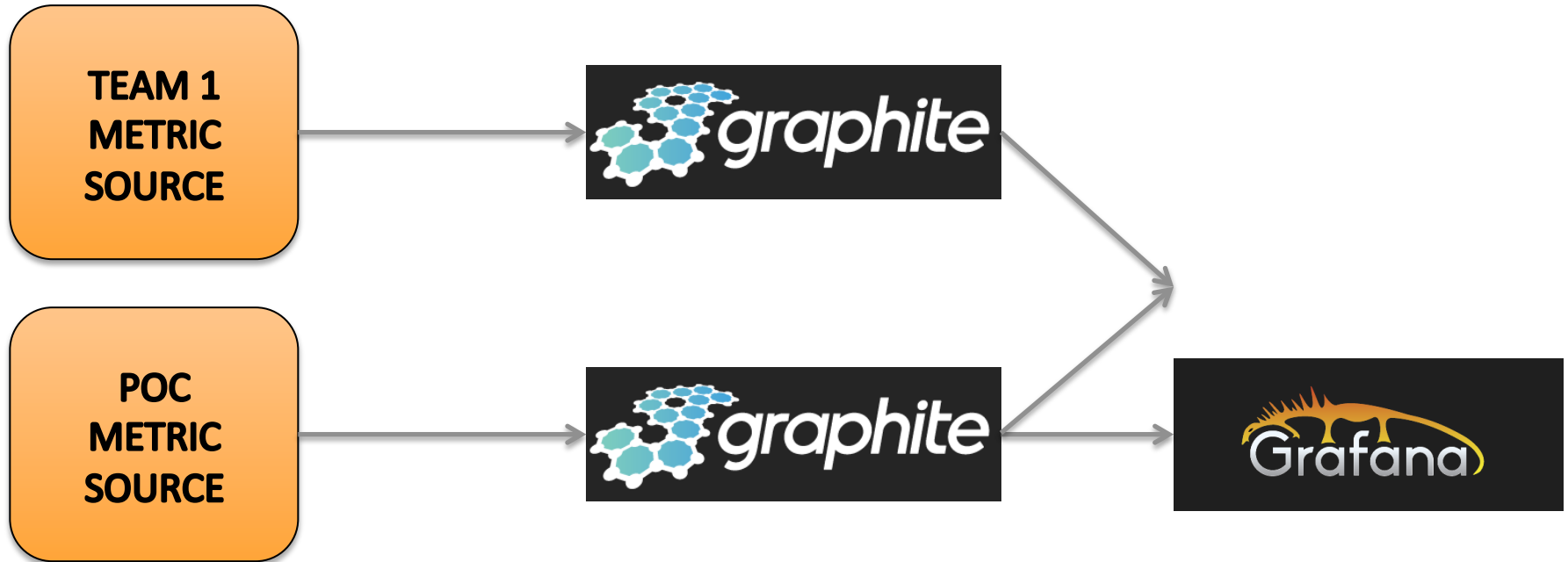
## Team 3 Requirements:

- 3 million logs a minute
- **Generate metrics in real time**

And more.....

# Divide & Conquer

# Design & Architecture



**POC works for: Team 1 requirements:**

1 metrics source	1 metrics source
50,000 unique metrics	100,000 unique metrics
72 million data points per day	200 million data points per day

# Team 1 Conquered!



**This strategy works! Bring it on!**

# Strategy



## **Team 1 Requirements:**

- 100,000 unique metrics
- About 200 million data points per day

## **Team 2 Requirements:**

- 500,000 unique metrics
- About 2 billion data points per day

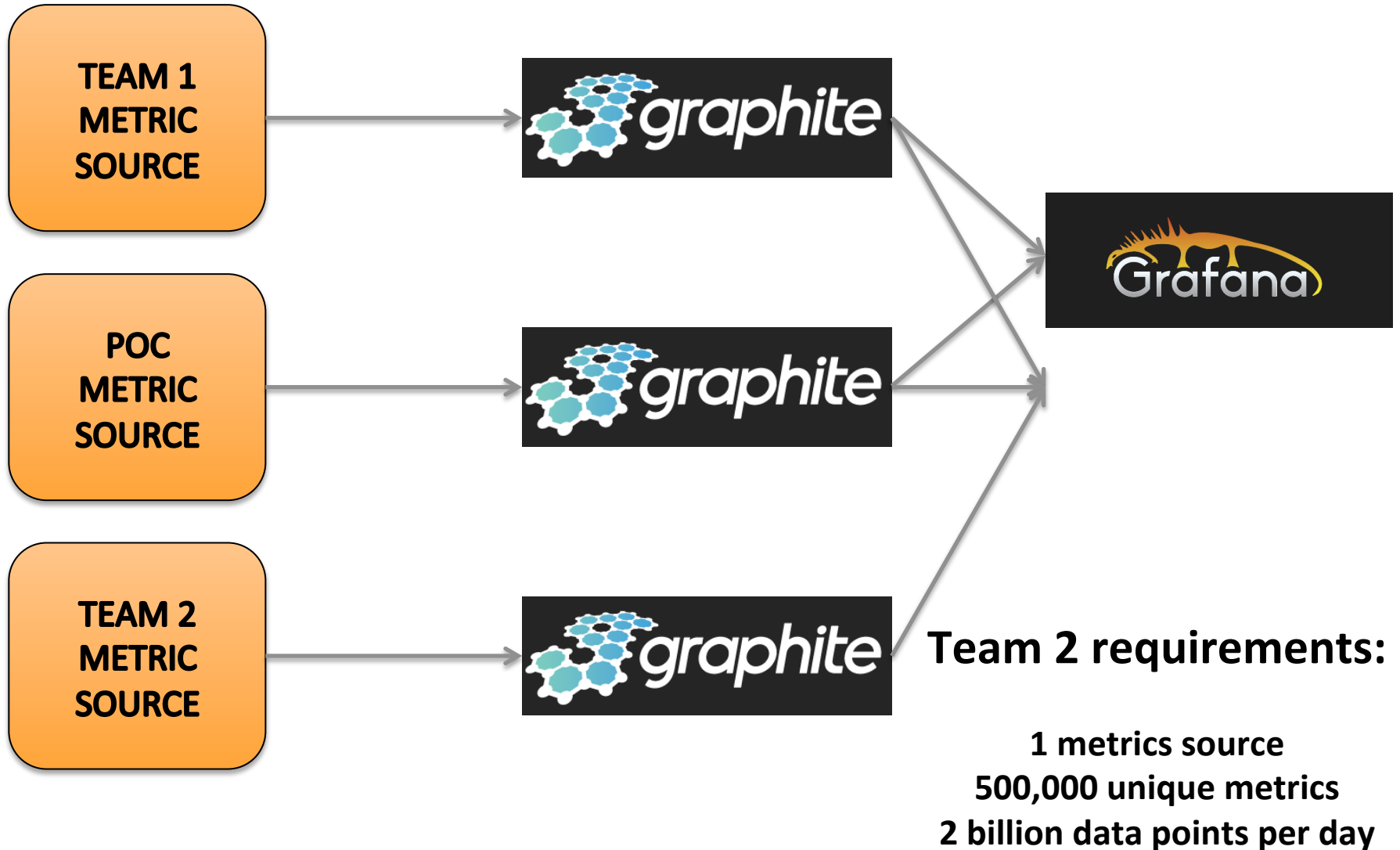
## **Team 3 Requirements:**

- 3 million logs a minute
- Generate metrics in real time

And more.....

# Divide & Conquer

# Design & Architecture

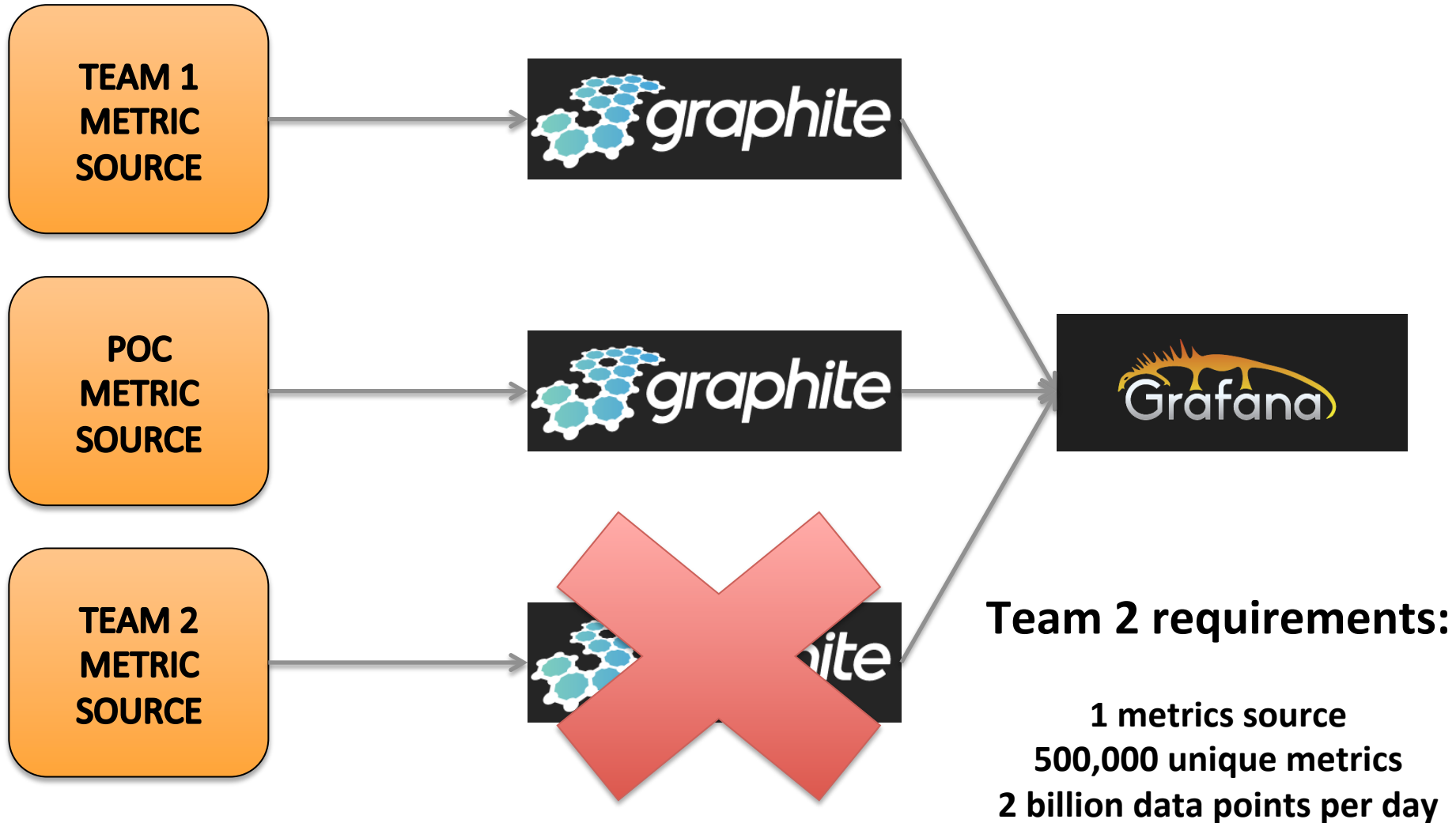


# Team 2 Conquered!



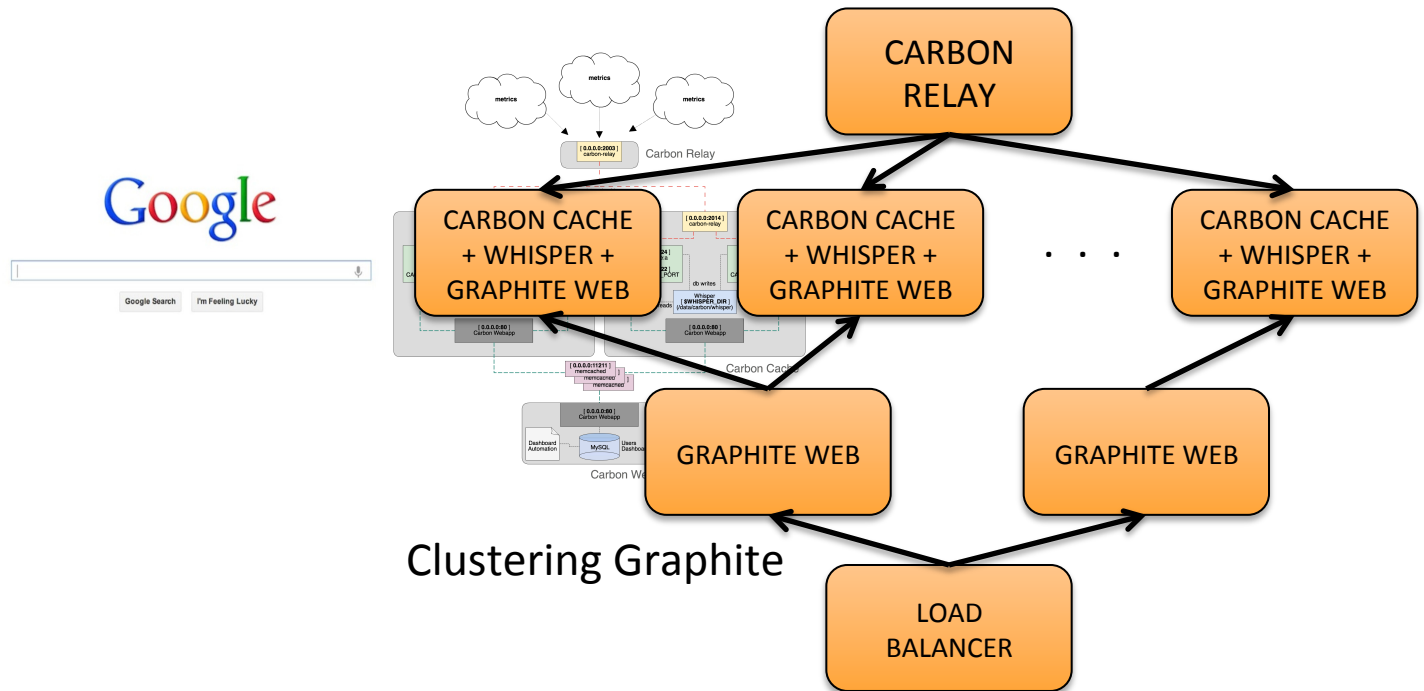


# Design & Architecture

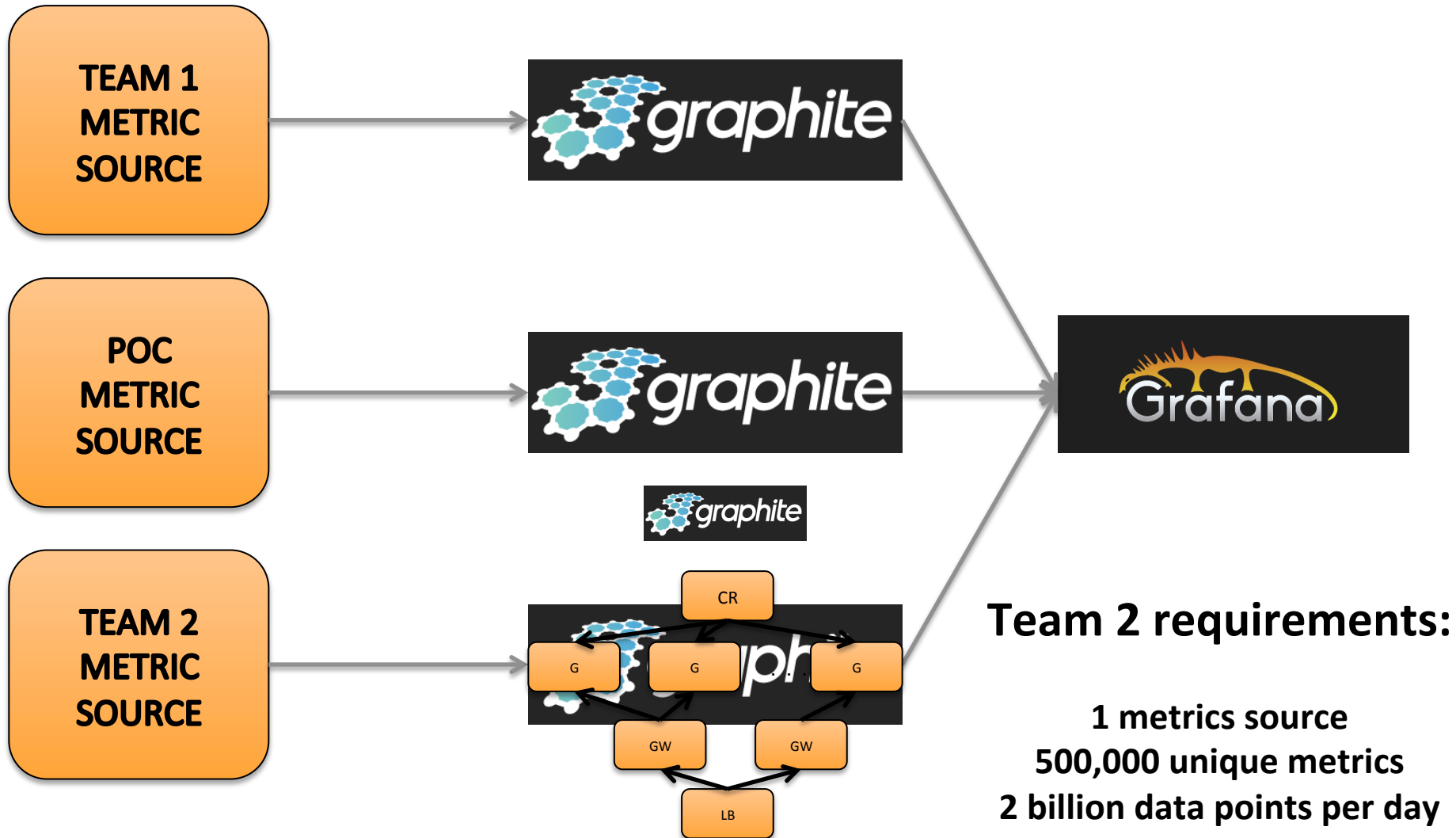




# Scaling Graphite



# Design & Architecture

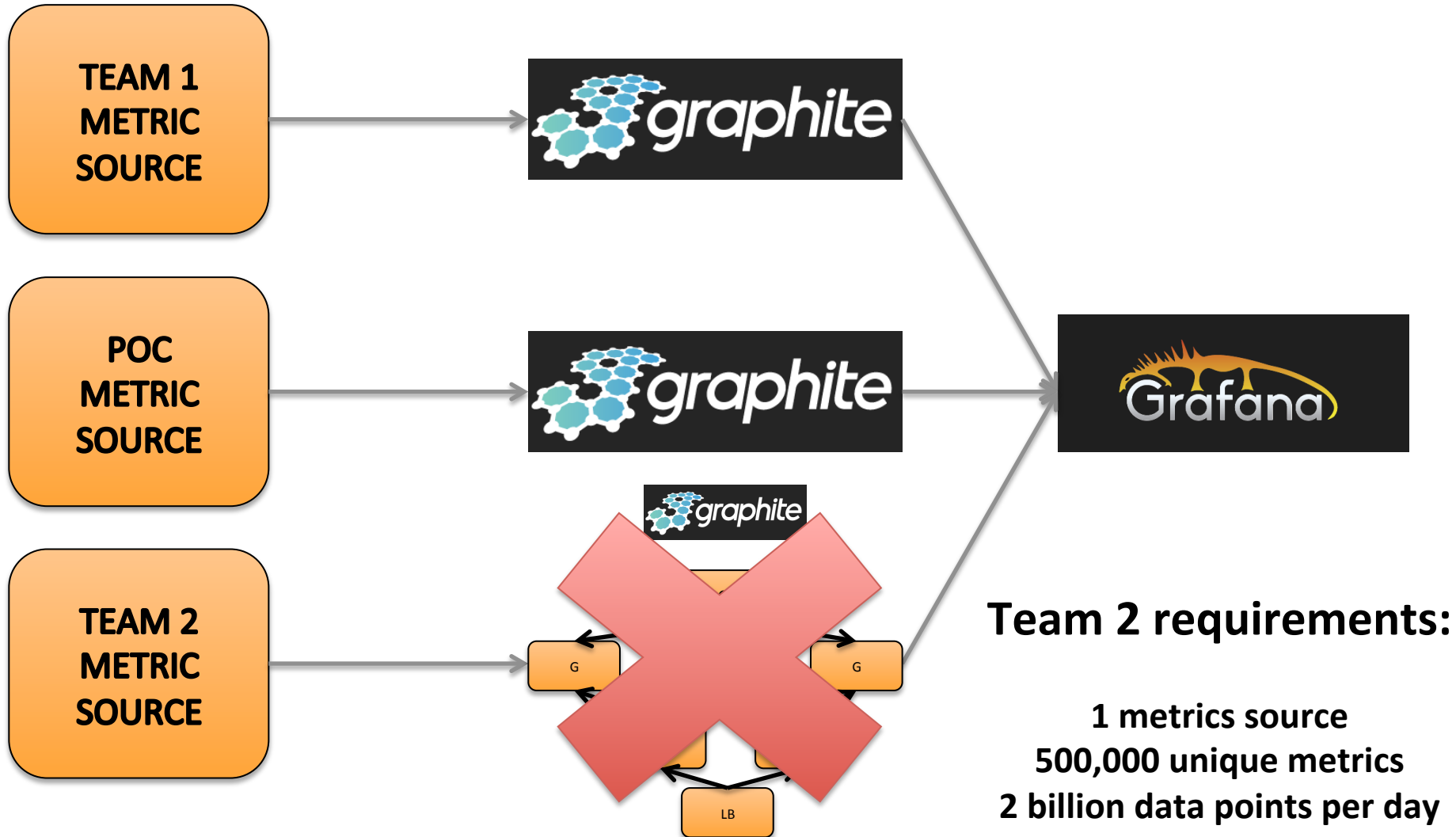


# Team 2 Conquered!



**But..... Happiness lasted only for a month ☹️**

# Design & Architecture



# Scalable Alternatives To Graphite

## Update on InfluxDB Clustering, High-Availability and Monetization

Paul Dix — March 10, 2016

**Update:** Since I wrote this post we've delivered on the things I've promised.

- We have continued to improve our open source platform with **88 new features and 133 bug fixes** to InfluxDB. This includes performance enhancements and all new query functionality like Holt-Winters, moving averages, and killing long running queries.
- We created **influx-relay** as a pure open source option for high-availability setups.
- We released managed clusters of InfluxDB on **InfluxCloud** on **April 19th**.
- On September 8th we made an affordable **on-premise InfluxEnterprise** offering at the promised price of \$399/month.

"How does InfluxData make money?" That's a question I've been asked many times over the course of the last year. InfluxData is a public company and we have a variety of ways to generate revenue.

### Recent Posts

**TL;DR InfluxDB Tech Tip: December 01, 2016 – December 1st, 2016**

**How to spin up the TICK in a Kubernetes instance: November 30th, 2016**

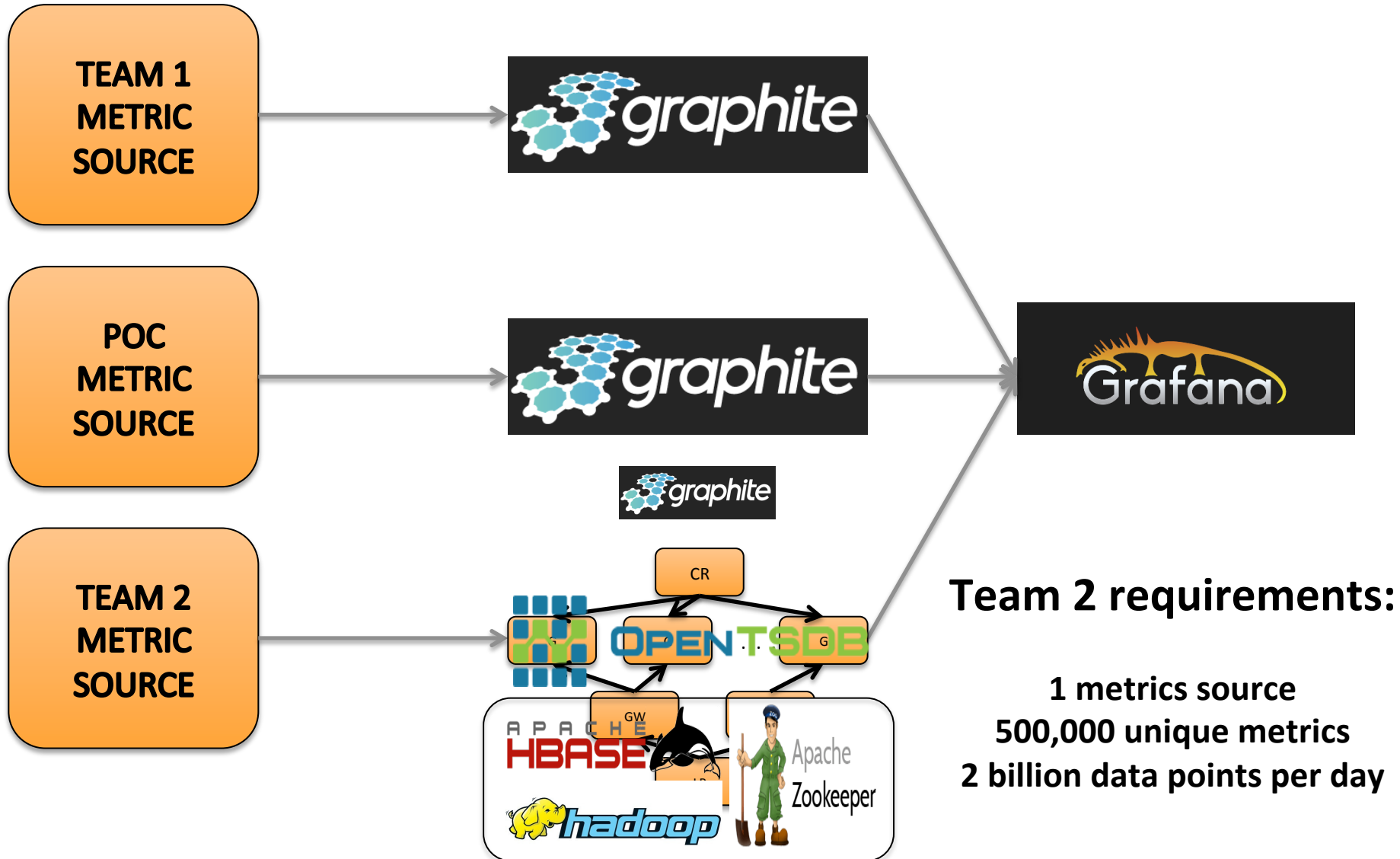
**InfluxDB Week in Review: December 28, 2016 – November 21, 2016**

**TL;DR InfluxDB Tech Tip**





# Design & Architecture



# Team 2 Conquered!



## Finally!

# Strategy



## Team 1 Requirements:

- 100,000 unique metrics
- About 200 million data points per day

## Team 2 Requirements:

- 500,000 unique metrics
- About 2 billion data points per day

## Team 3 Requirements:

- 3 million logs a minute
- Generate metrics in real time

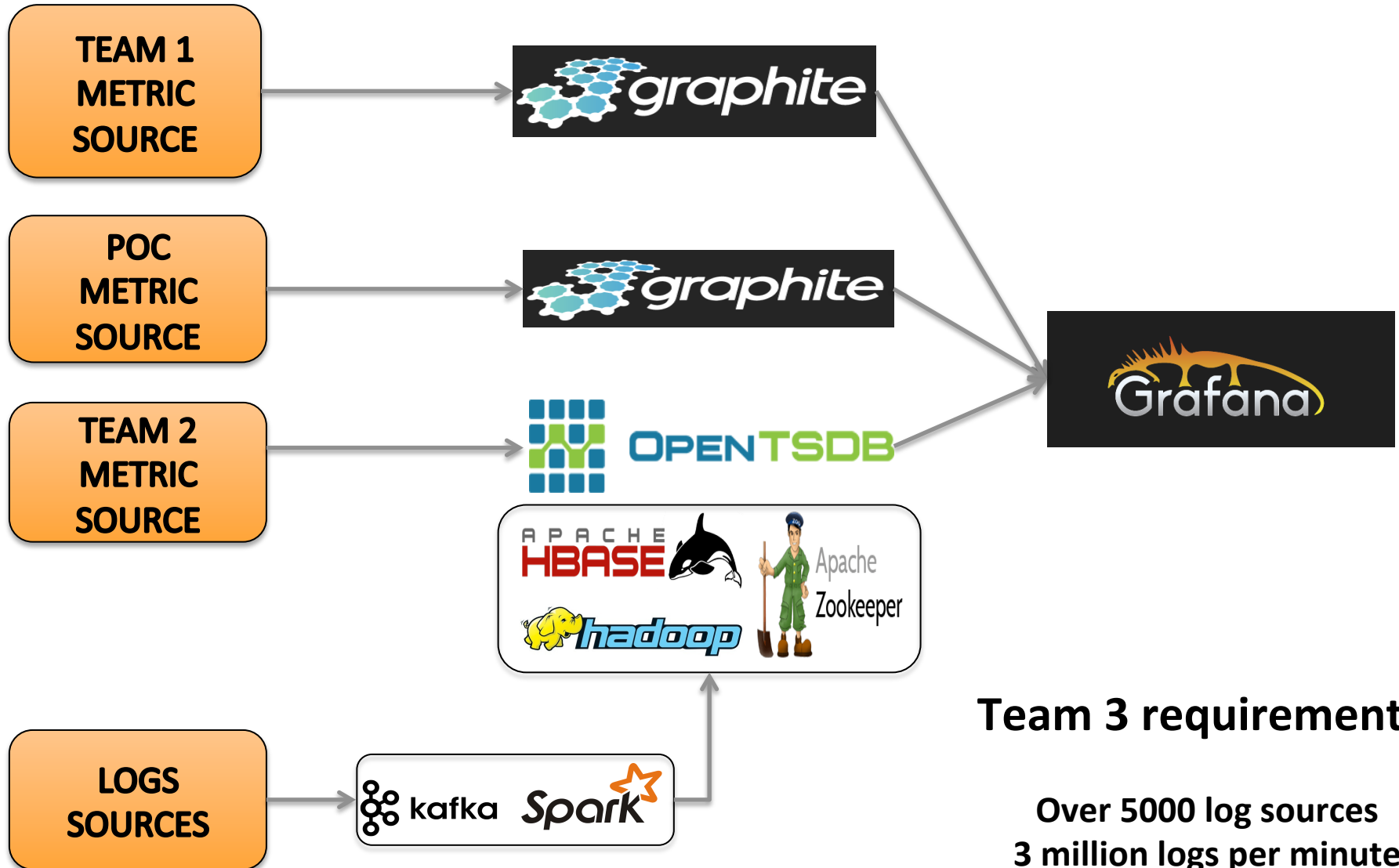
And more.....

# Divide & Conquer

# How to process logs at scale?



# Design & Architecture

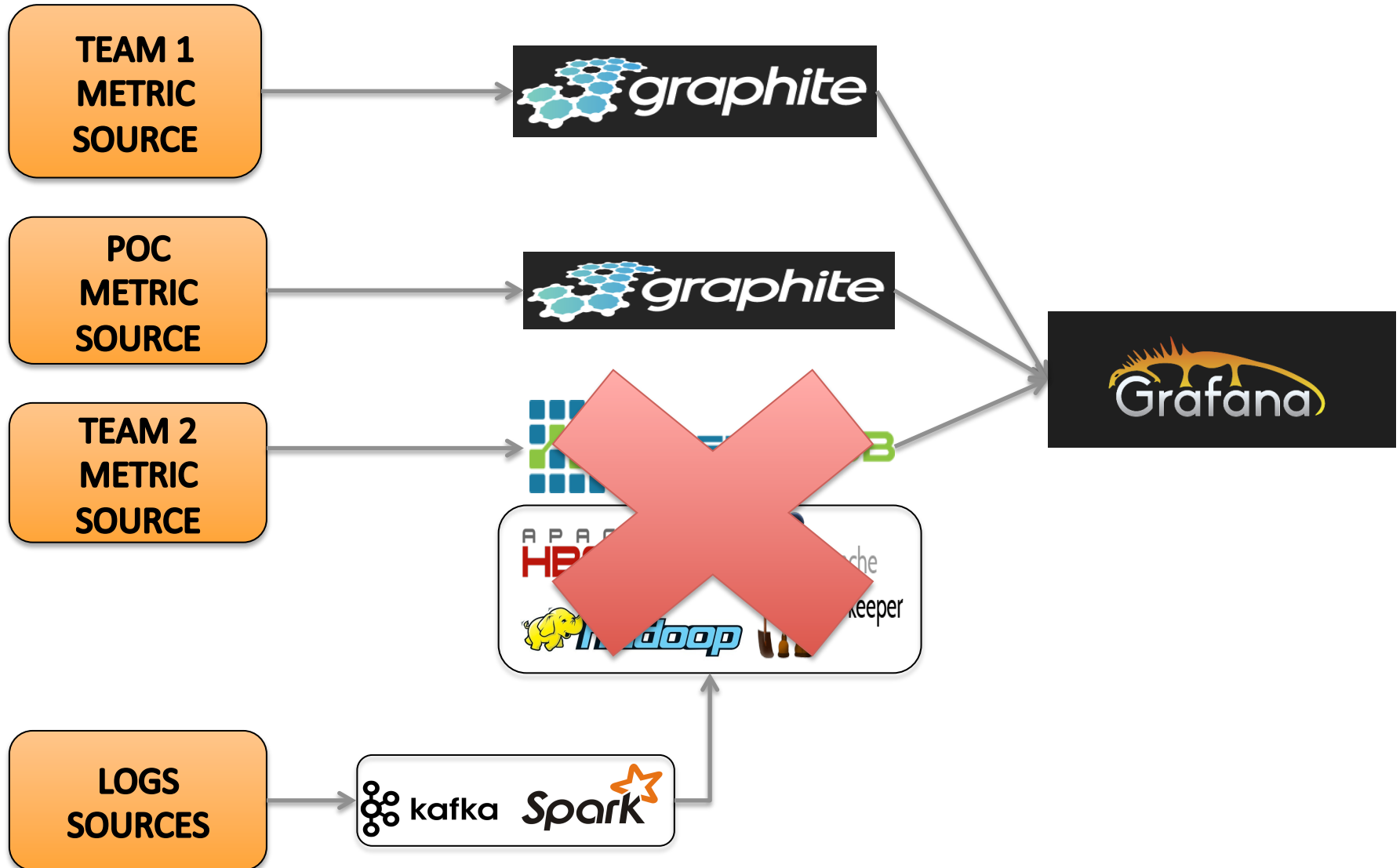


# Team 3 Conquered!



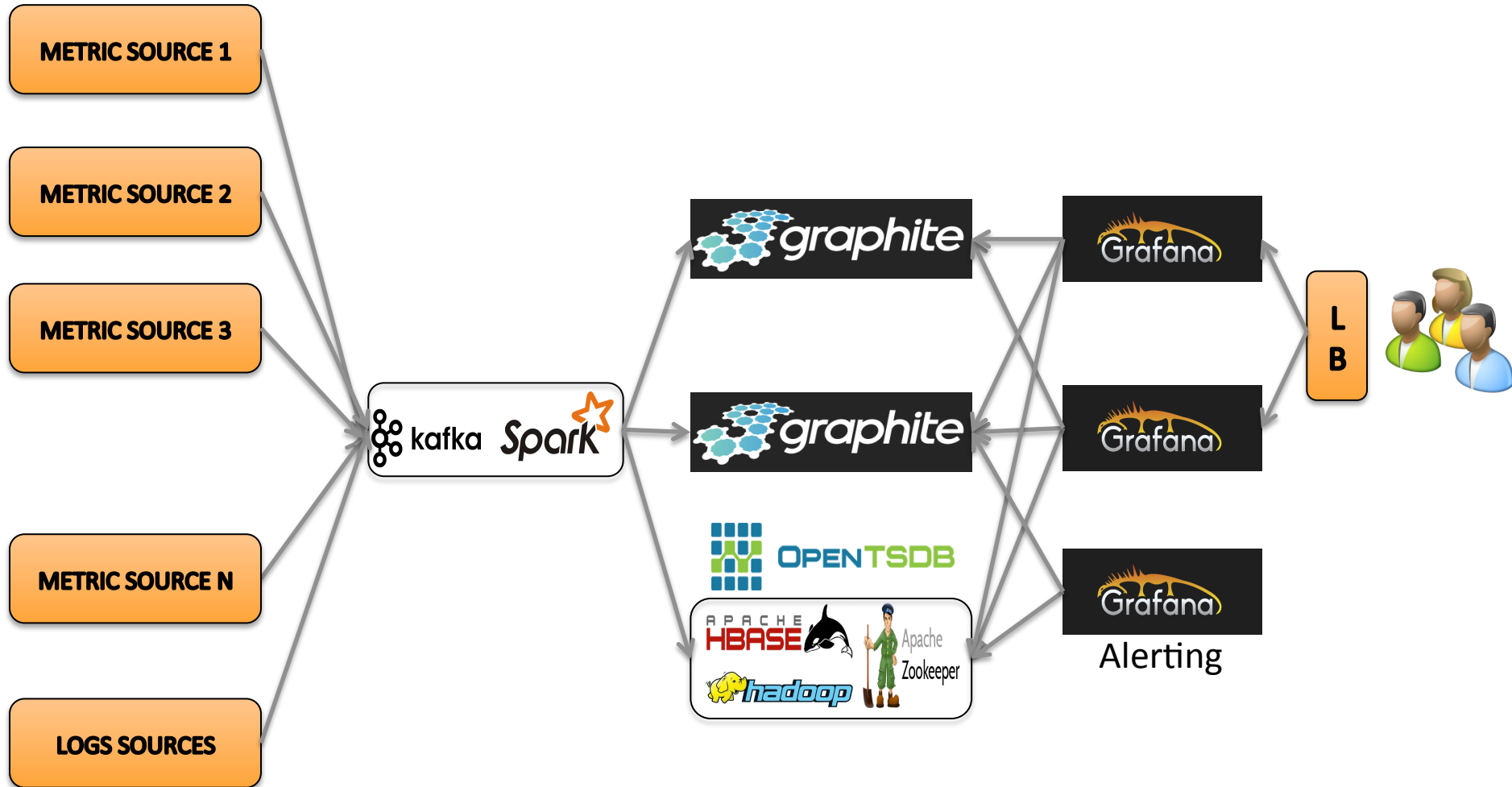
**But .... One day..**

# Design & Architecture





# Design & Architecture



# Metrics & Logs Sources



APACHE  
HTTP SERVER



## Application Metrics

- Apps using a stats library written by [Alexander Filipchik](#)  
(Principal Engineer @ PlayStation)

## Custom metrics

- From other sources

# **Some numbers**

- **More than 4 million unique metrics supported**
  - creation and deletion happens all the time
- **More than 11 billion data points written per day**
  - across all TSDBs
- **Processing about 40 billion events per day**
  - logs and metrics events in near real time (within 30 seconds)
- **More than 3000 requests per minute to Grafana dashboards**
  - around 7000 in during outages

# **Lessons Learned**

# Strategy



## Divide & Conquer



# Look for alternatives!



# Choose scalable components!



(Subject to effort and time)



# Automation



ANSIBLE



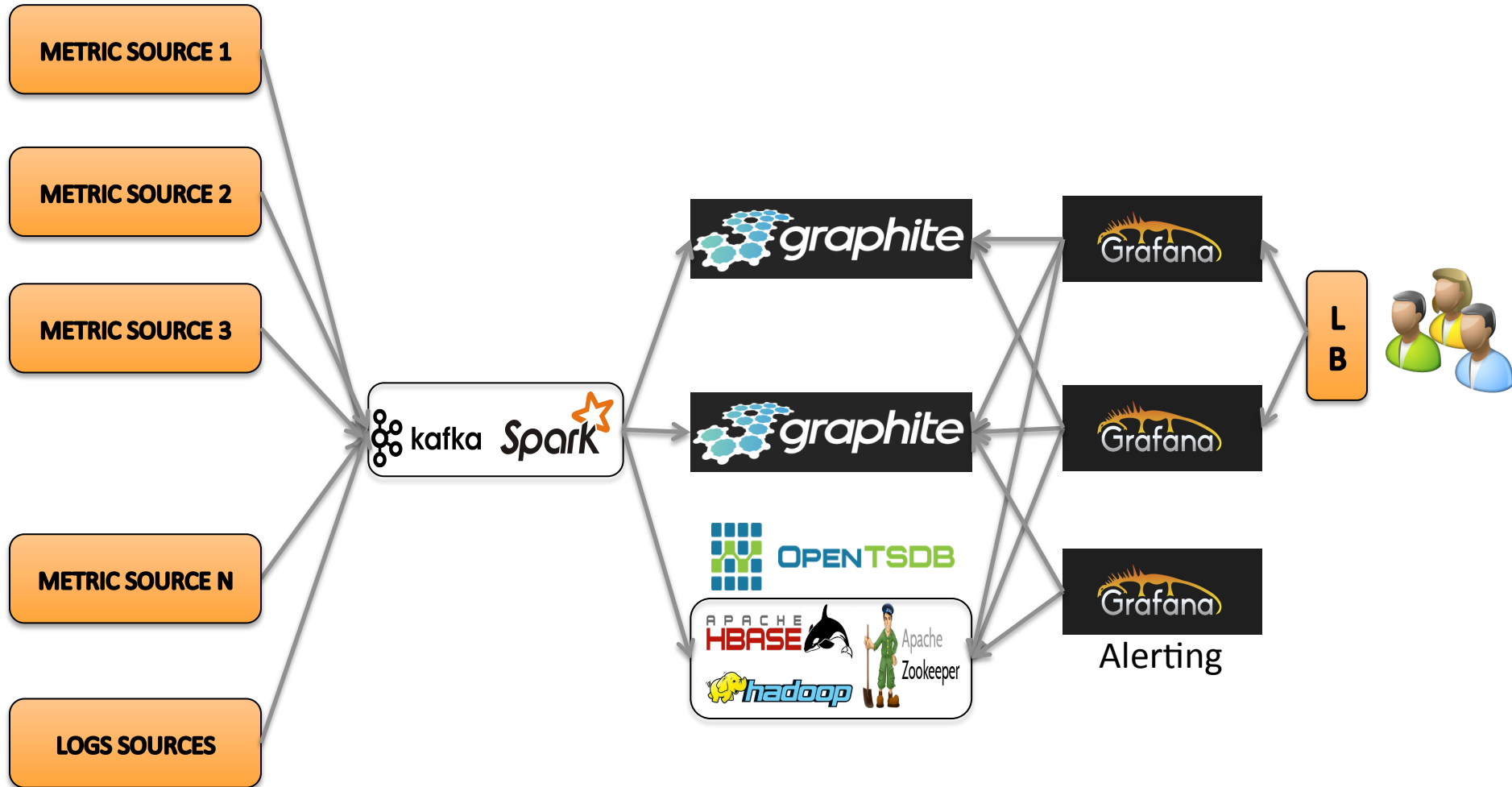
CHEF™



SALTSTACK



# Design & Architecture



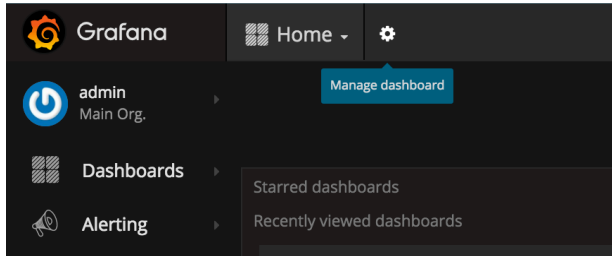


**What's Next for Jack?**



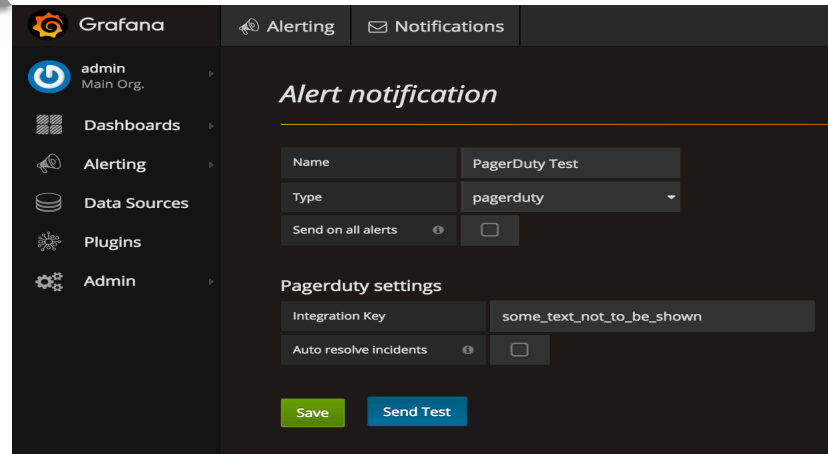
**I FEEL THE TIME IS  
RIGHT FOR ME TO MOVE  
ON TO ANOTHER  
CHALLENGE.**

# Power of Open-Source



Sep, 21<sup>st</sup> 2015

Nov, 17<sup>th</sup> 2016



## Grafana Pull Requests:

- Total - 144
- Accepted – 128
- Declined – 14
- Open - 2

# Contribute More!

# wizzy

Manage Grafana entities with easy wizzy

```
JS80E650113D86:wizzy-trial ubhatnagar$ wizzy summarize dashboard app-overview
```

Output:

```
{
  "title": "App Overview",
  "rowCount": 2,
  "rows": [
    {
      "title": "Row_Mera",
      "panelCount": 5,
      "panelTitles": "Memory Utilization, Memory Free, CPU Utilization, Load Average (Short Term), Disk Usage (root)"
    },
    {
      "title": "New row",
      "panelCount": 3,
      "panelTitles": "Apache Connections, Network in, Network out"
    }
  ],
  "templateVariableCount": 3,
  "templateVariableNames": "env, app, az",
  "time": {
    "from": "now-3h",
    "to": "now",
    "timezone": "browser"
  }
}
```

✓ Showed dashboard app-overview summary successfully.

```
JS80E650113D86:wizzy-trial ubhatnagar$
```

<https://utkarshcmu.github.io/wizzy/>

# Use Cases

- **Prod , Stage and Dev installations of Grafana**
- **Move/Copy rows, panels from one dashboard to another**
- **Version control your dashboards**
- **Manage Grafana entities like orgs, etc via CLI**



**DEMO TIME**



**LET'S HOPE THE DEMO-GODS ARE  
SMILING!**



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