Grafana and the Future of Metrics Visualization

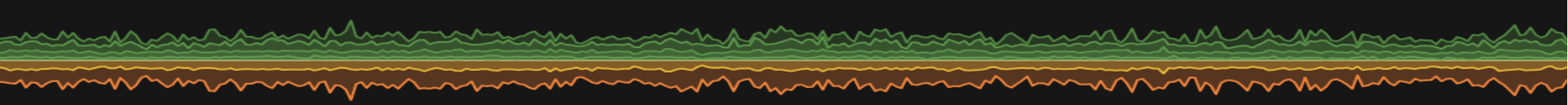
grafana.org
github.com/grafana/grafana
@grafana

Torkel Ödegaard

- Stockholm, Sweden
- @torkelo

raintank

What is Grafana?



Infrastructure monitoring

Application metrics

Process control

Time series visualization

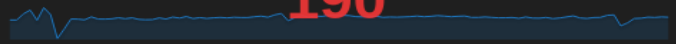
Industrial sensors

Weather

Home automation

Logins

190



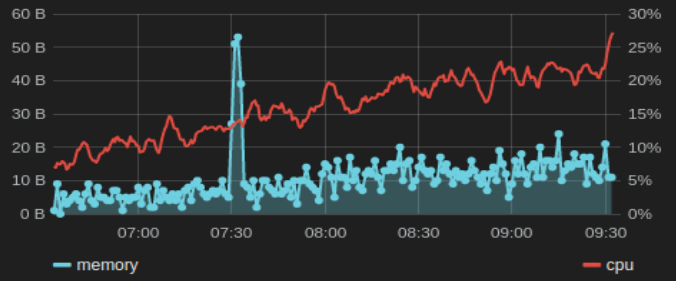
Sign ups

269

Sign outs

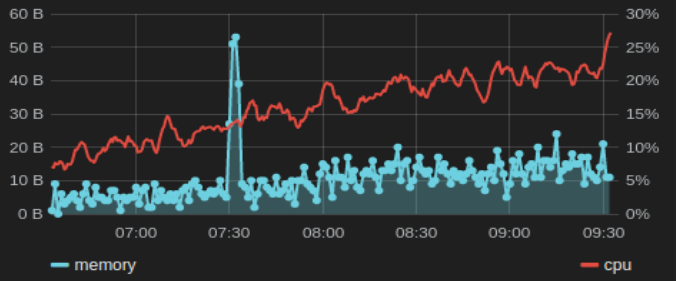
273

Memory / CPU

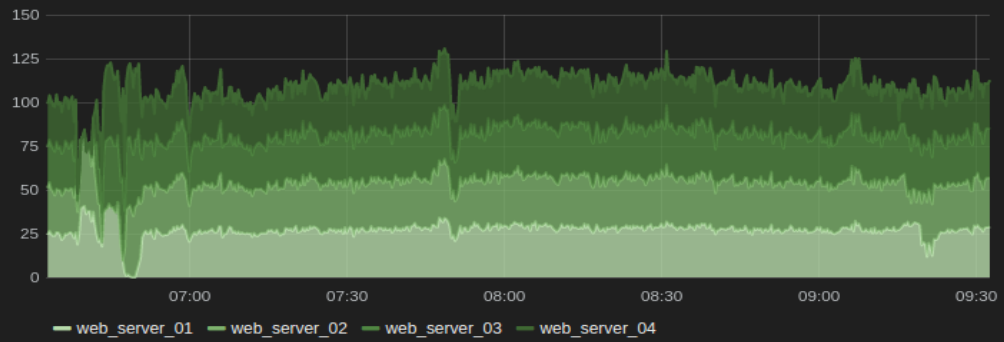


logins

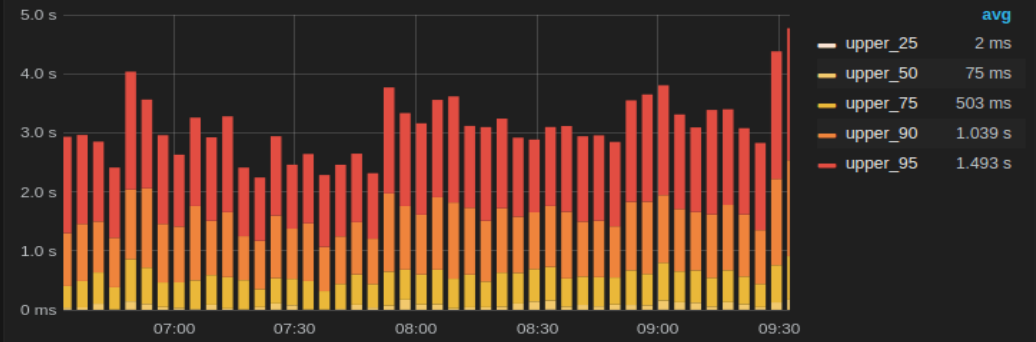
Memory / CPU

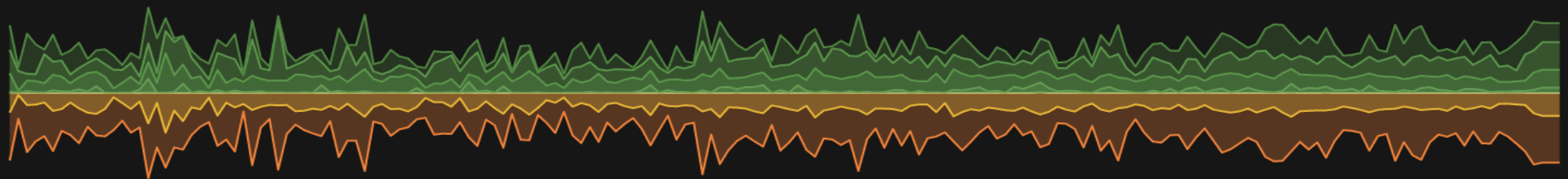


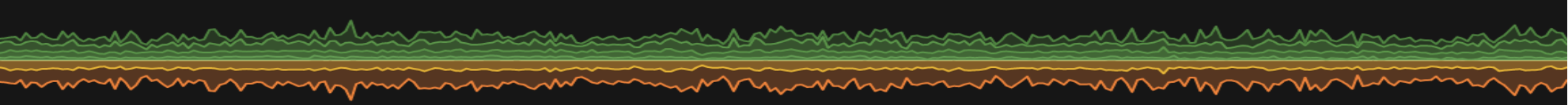
server requests



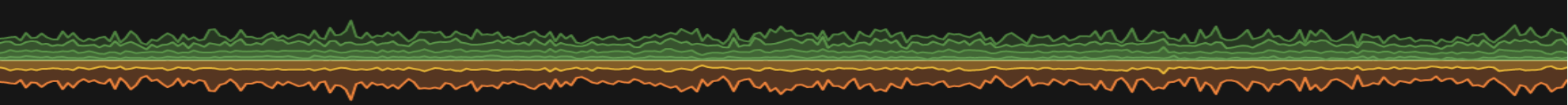
client side full page load





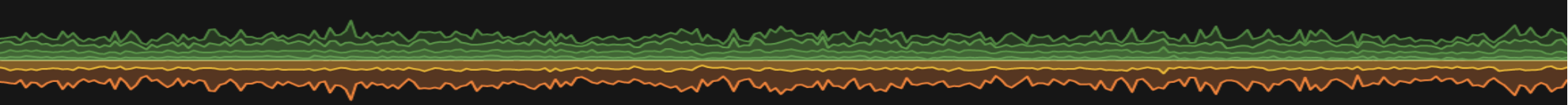


Why Build Grafana?



Agile

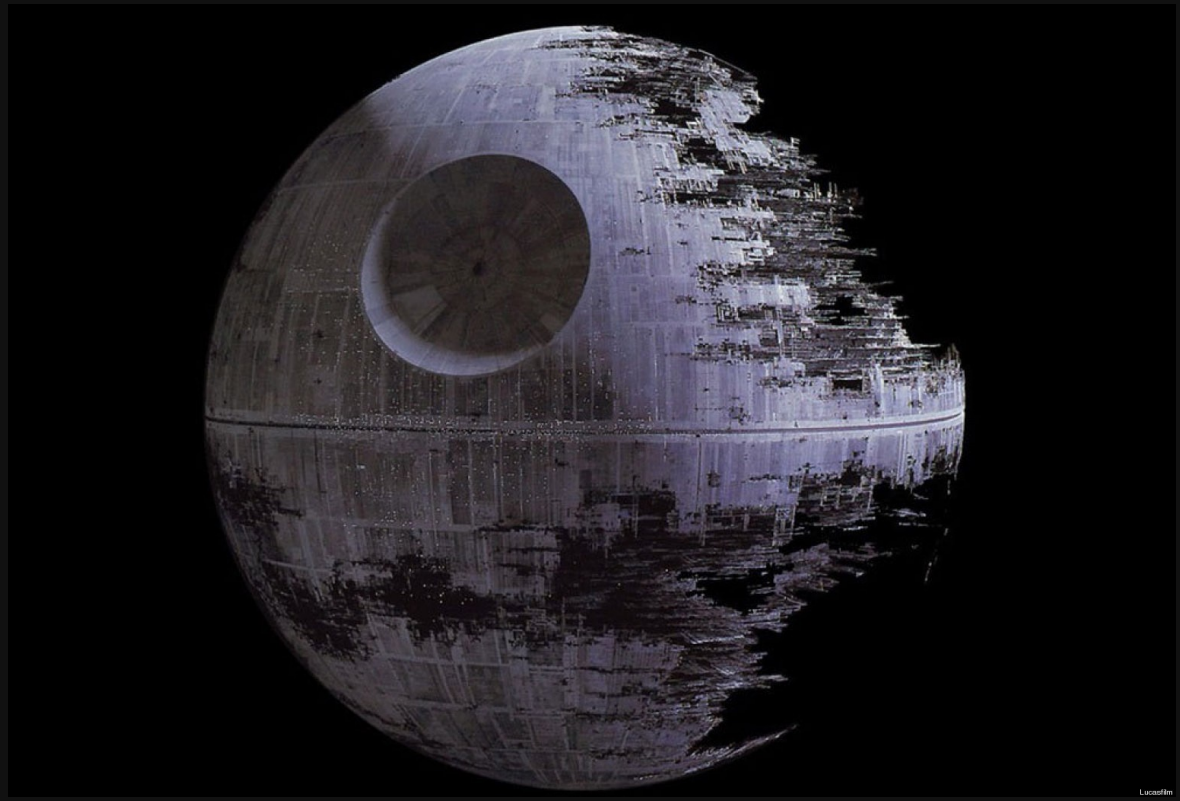
TTD

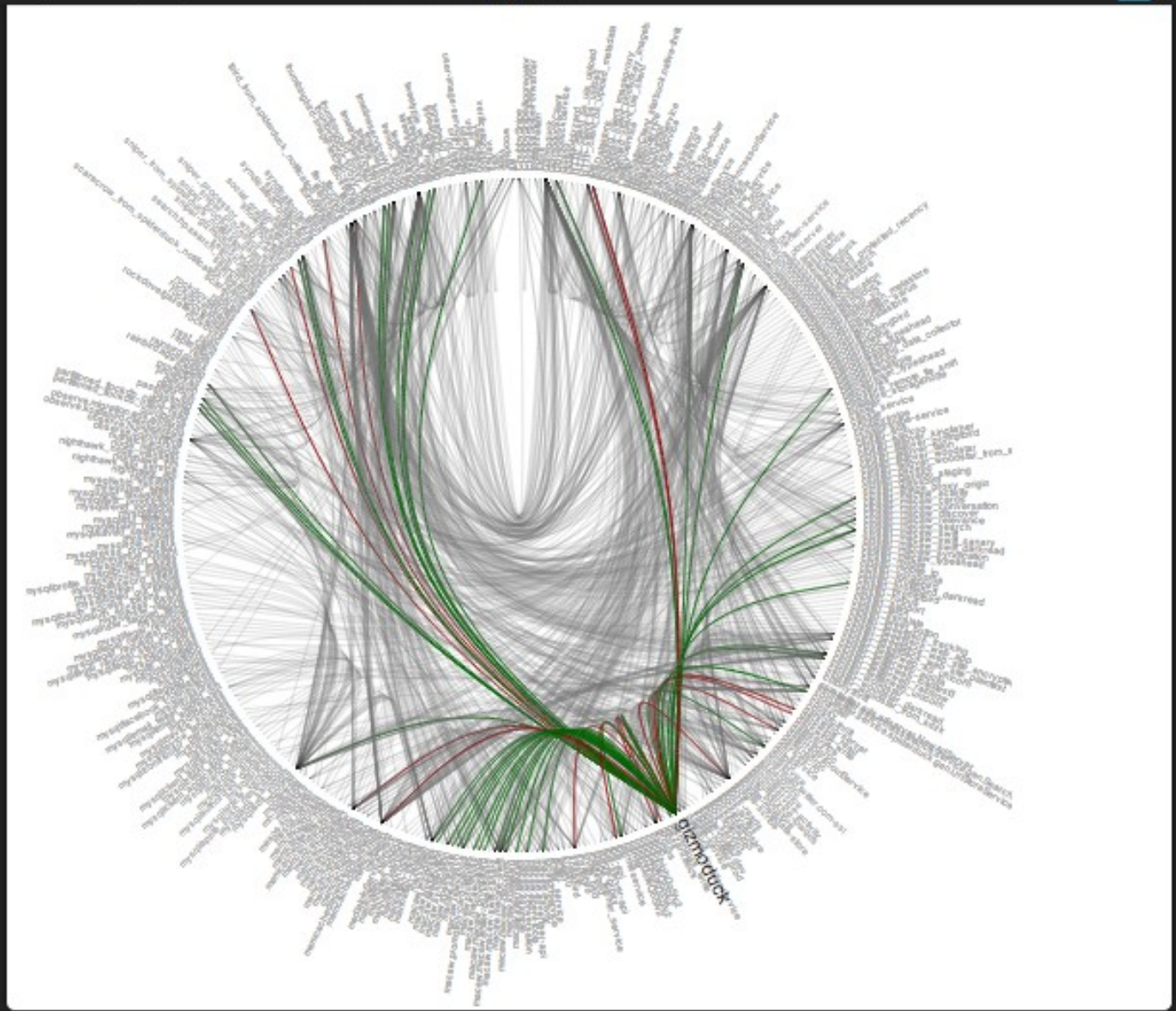


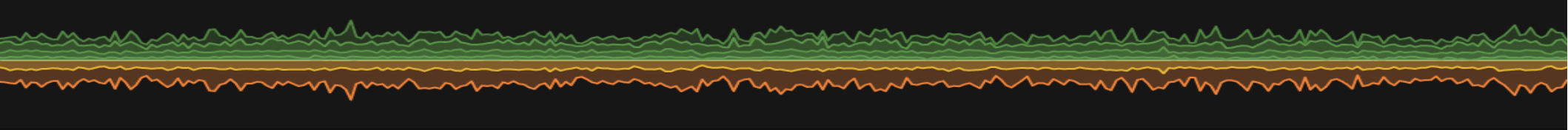
Continuous Delivery

Micro Services

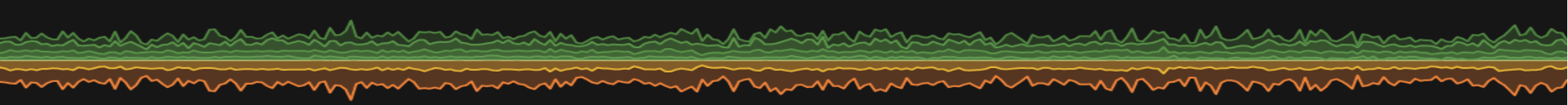
Death Star Architecture




bizmpduck

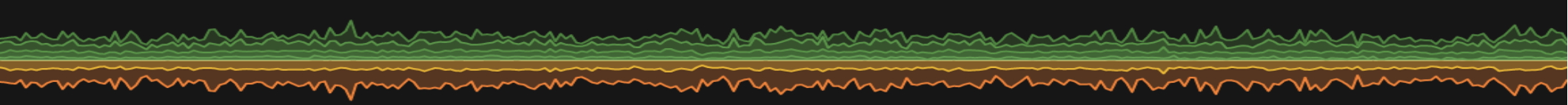


Observability



Time Series Database (TSDB)

Write & Query API designed for Time Series



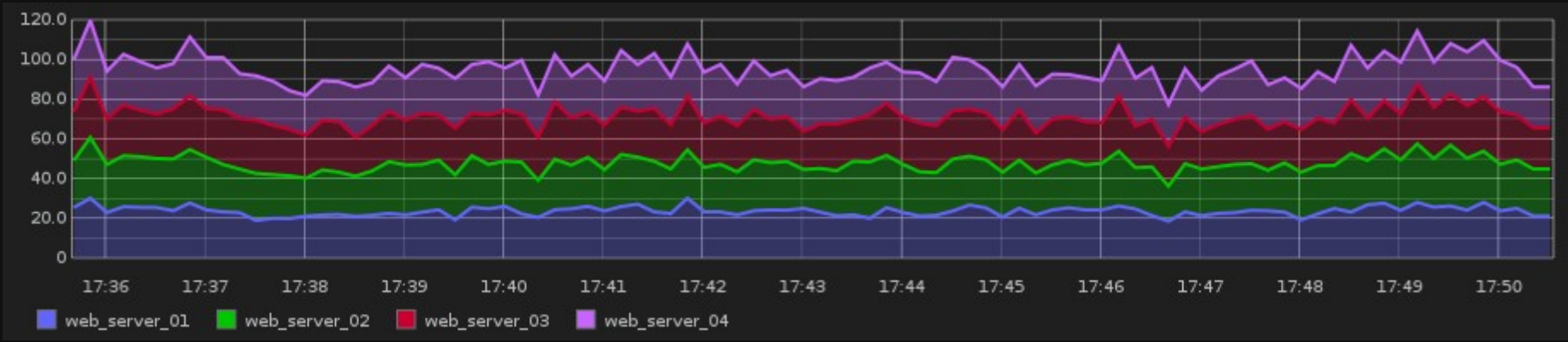
Graphite

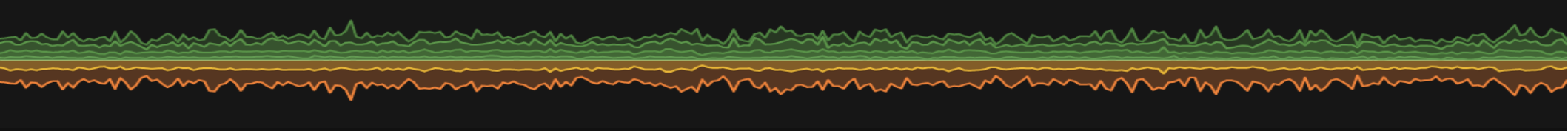
INPUT

```
apps.server1.counter.login.count    10    1398969187
```

QUERY

```
prod.apps.*.counter.login.count
```



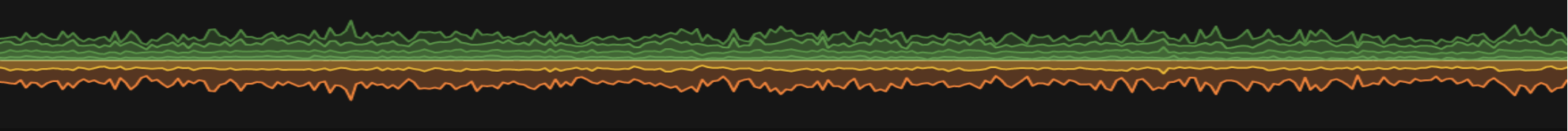


QUERY

```
sumSeries(prod.apps.*.counter.login.count)
```

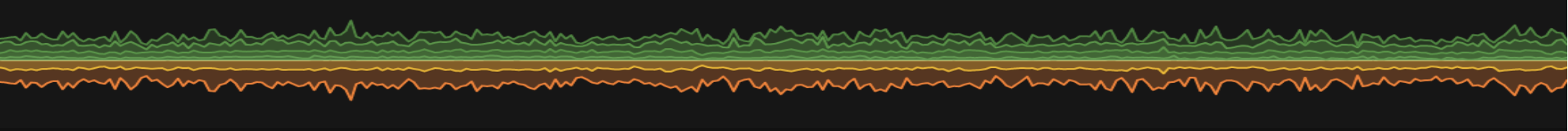
QUERY

```
movingAverage(scaleToSeconds(prod.apps.*.counter.login.count, 1), 5min)
```



QUERY

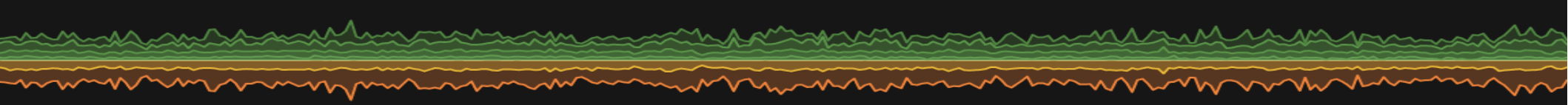
```
timeShift(prod.apps.*.counter.login.count, 1d)
```



Measure Anything, Measure Everything 2011

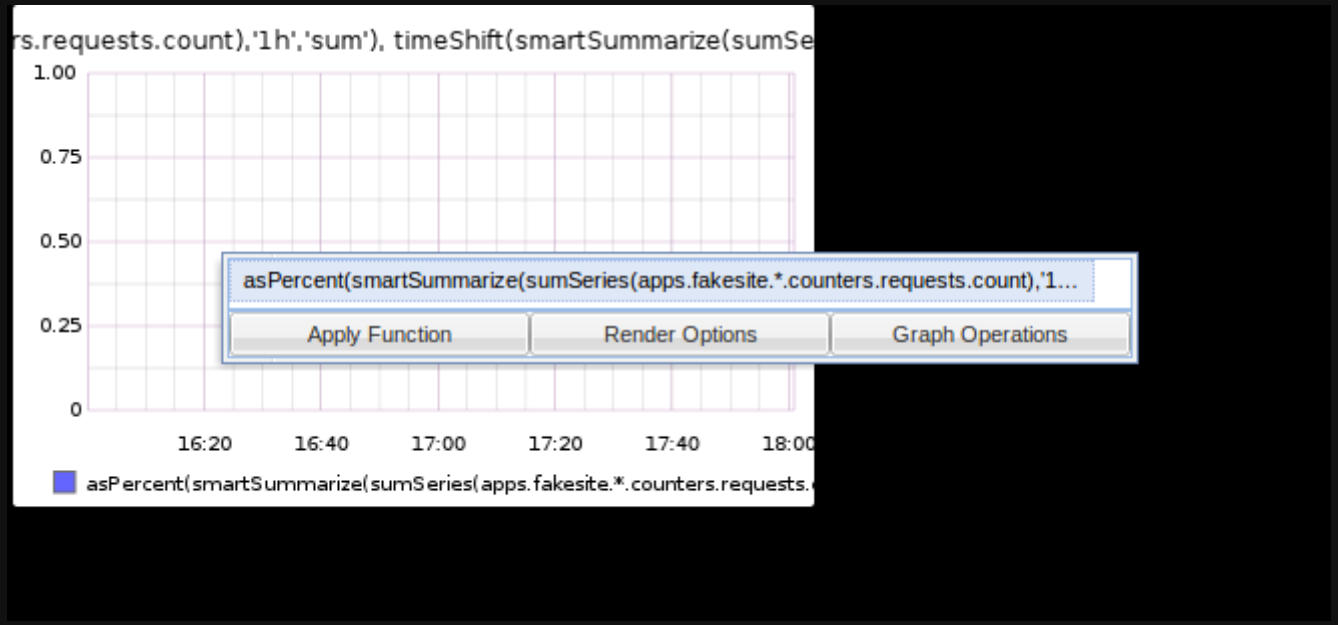
StatsD

```
stats.increment(“logins”)
```



Instrumentation

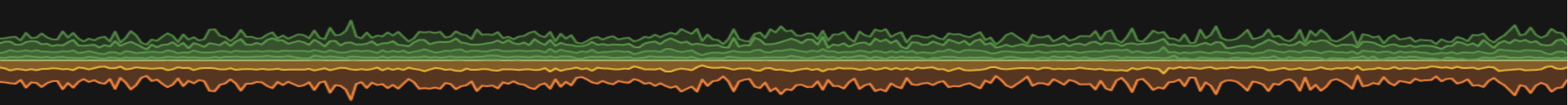
Build Dashboards


rs.requests.count),'1h','sum'), timeShift(smartSummarize(sumSe
1.00
0.75
0.50
0.25
0
16:20
16:40
17:00
17:20
17:40
18:00
asPercent(smartSummarize(sumSeries(apps.fakesite.*.counters.requests.count),'1...
Apply Function
Render Options
Graph Operations
asPercent(smartSummarize(sumSeries(apps.fakesite.*.counters.requests.

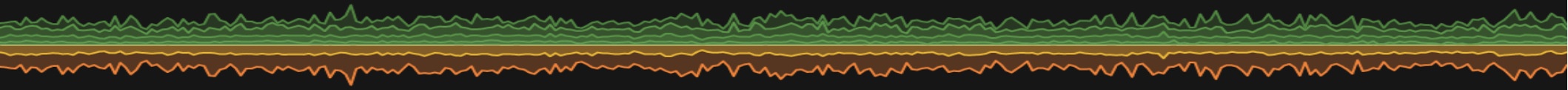
Low Adoption

Scratching your own itch

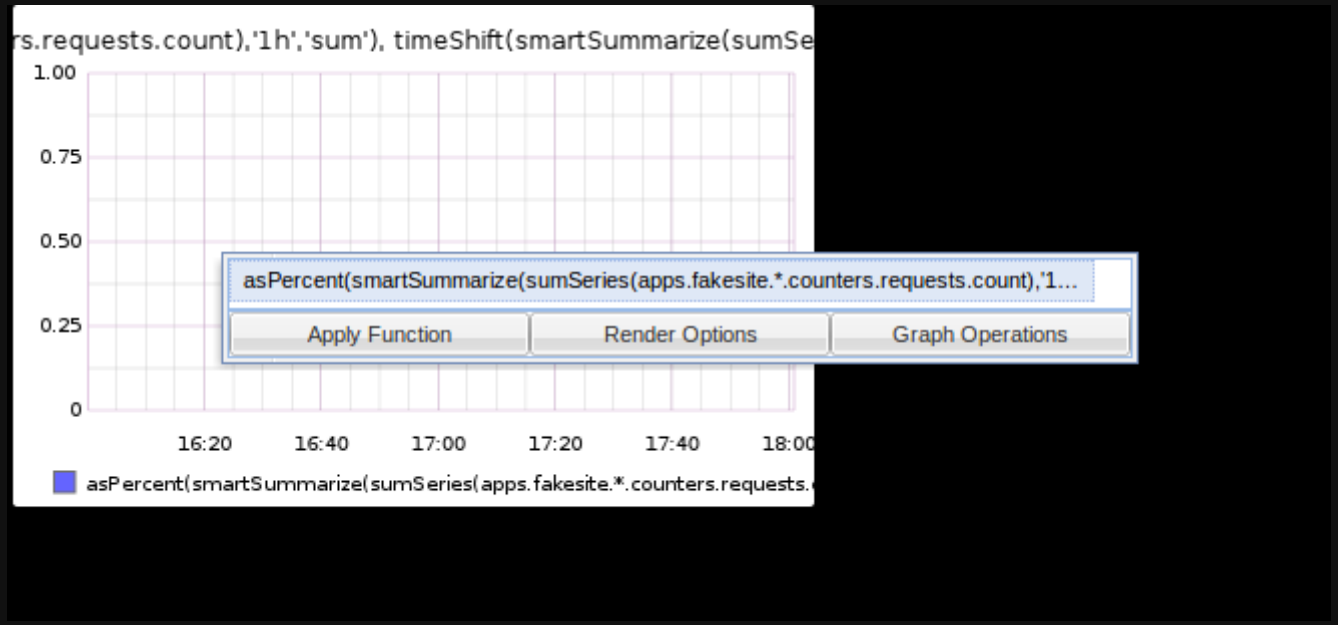
Grafana



Accessable



```
movingAverage(scaleToSeconds(prod.apps.*.counter.login.count, 1), 5min)
```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1.00
0.75
0.50
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16:40
17:00
17:20
17:40
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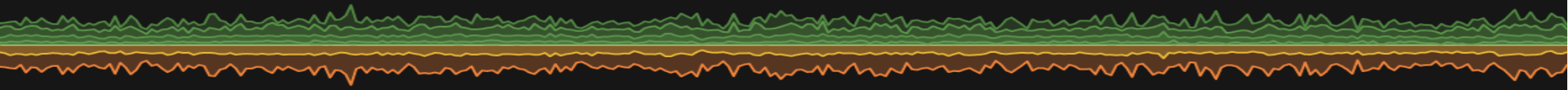
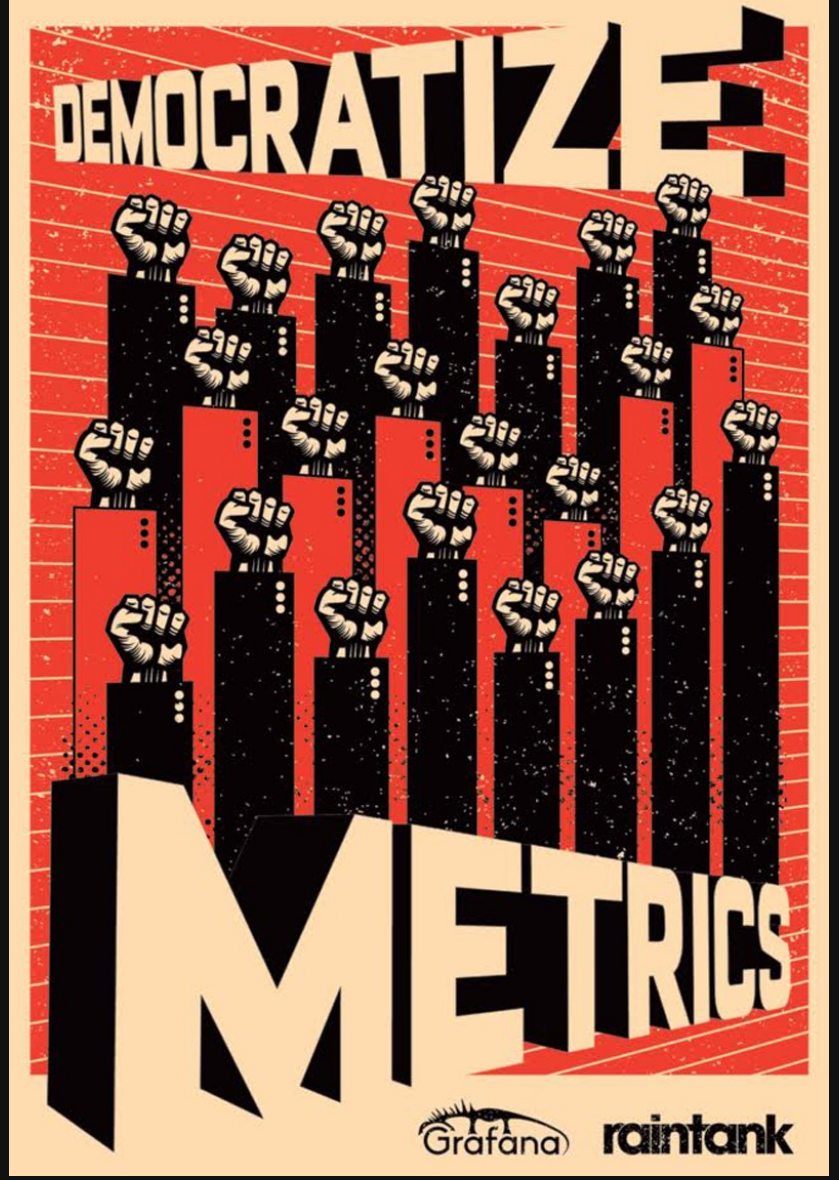
asPercent(smartSummarize(sumSeries(apps.fakesite.*.counters.requests.count),'1...
Apply Function
Render Options
Graph Operations
asPercent(smartSummarize(sumSeries(apps.fakesite.*.counters.requests.



A		apps	*	backend_03	counters	requests	count	+	

+ Query


DEMOCRATIZE
METRICS
Grafana
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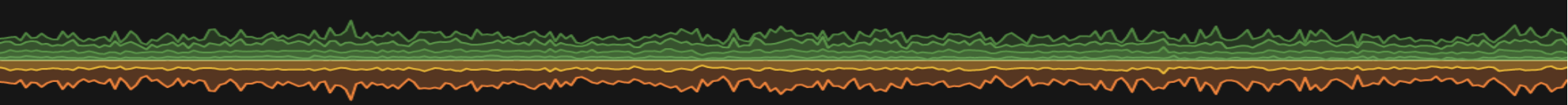
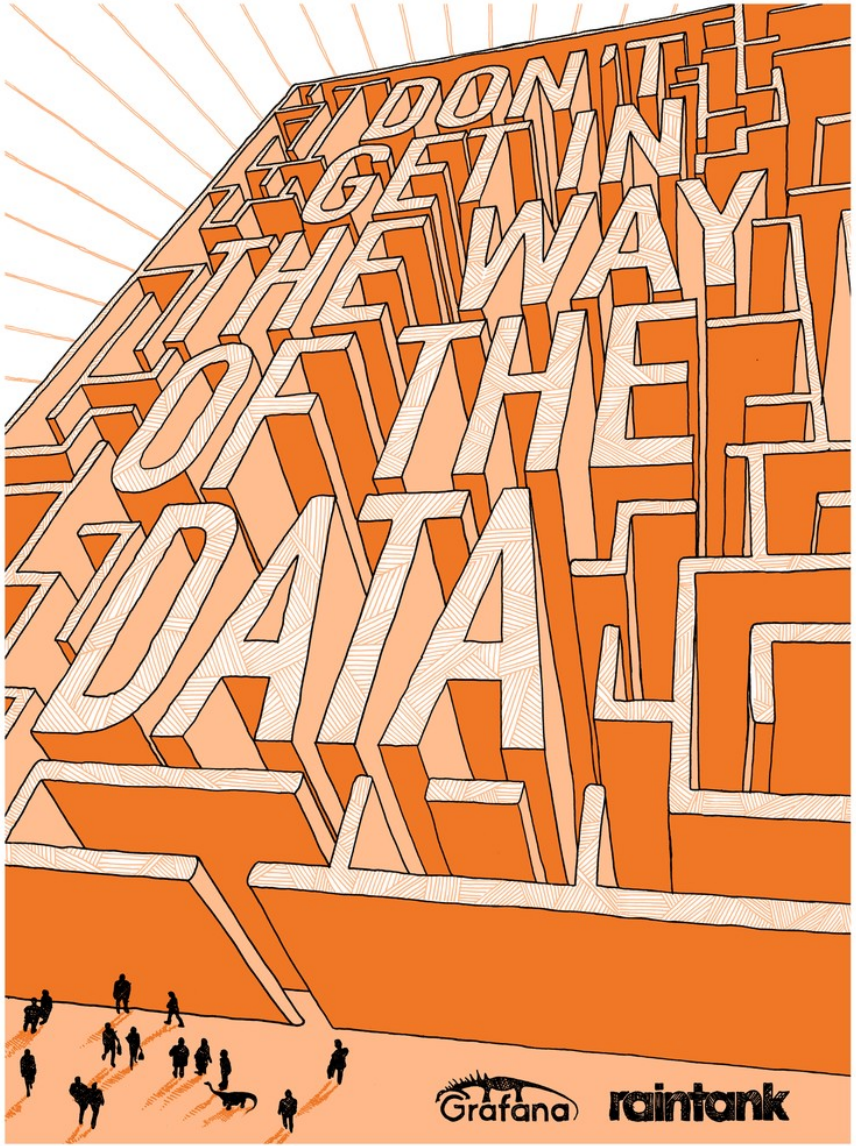
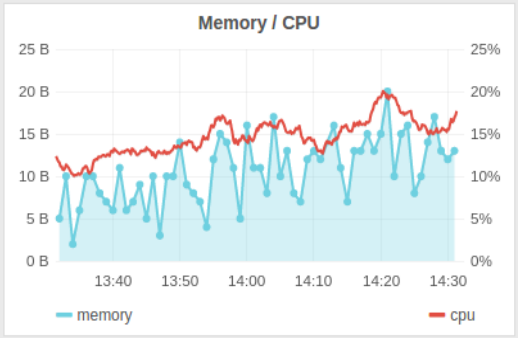
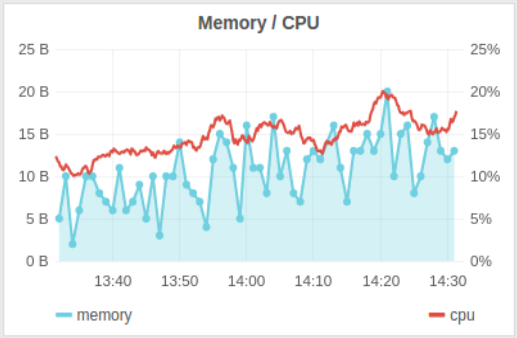


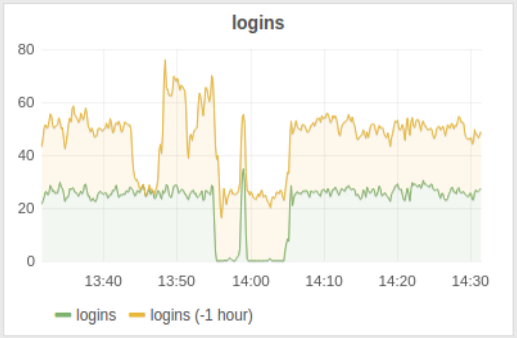
Beautiful


DON'T
GET IN
THE WAY
OF THE
DATA
Grafana
raintank


Memory / CPU
25 B
20 B
15 B
10 B
5 B
0 B
25%
20%
15%
10%
5%
0%
13:40
13:50
14:00
14:10
14:20
14:30
memory
cpu

logins
80
60
40
20
0
13:40
13:50
14:00
14:10
14:20
14:30
logins
logins (-1 hour)


Memory / CPU
25 B
20 B
15 B
10 B
5 B
0 B
25%
20%
15%
10%
5%
0%
13:40
13:50
14:00
14:10
14:20
14:30
memory
cpu


logins
80
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40
20
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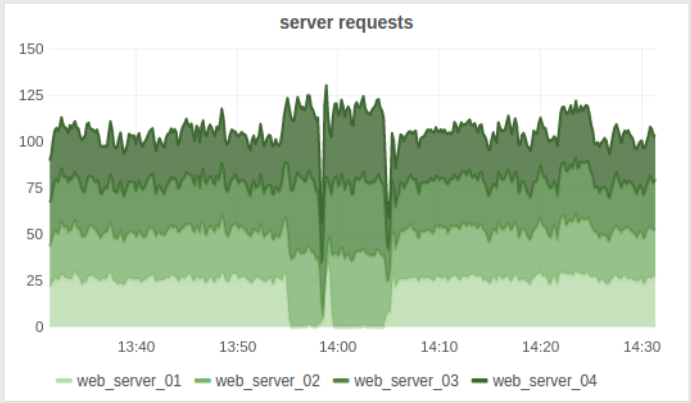
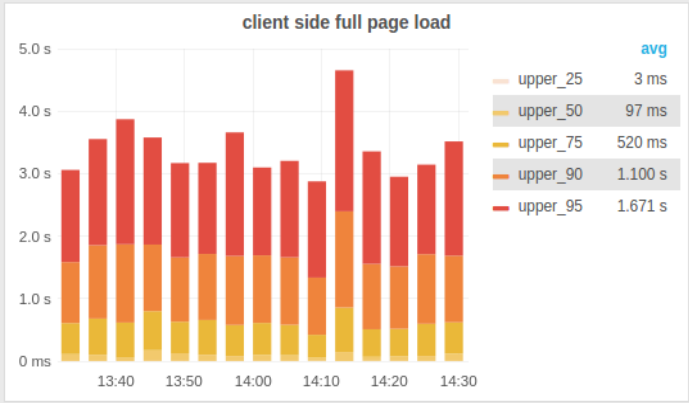
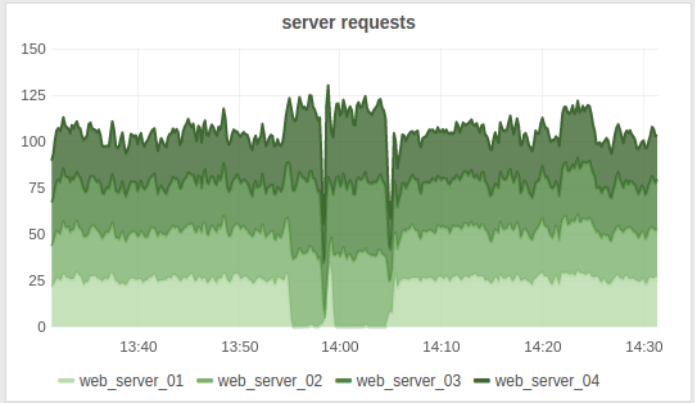
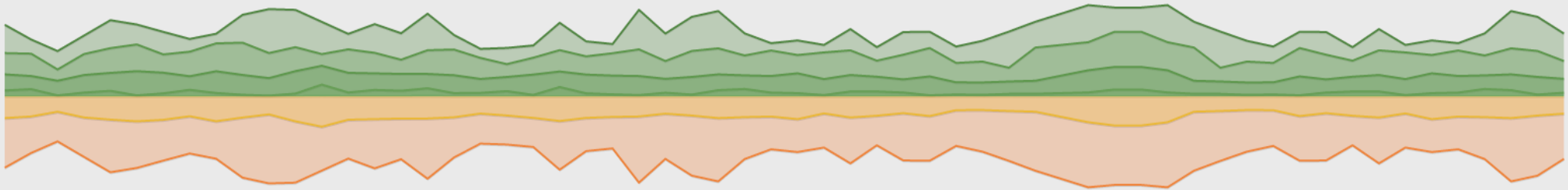
13:40
13:50
14:00
14:10
14:20
14:30
logins
logins (-1 hour)


server requests
150
125
100
75
50
25
0
13:40
13:50
14:00
14:10
14:20
14:30
web_server_01
web_server_02
web_server_03
web_server_04

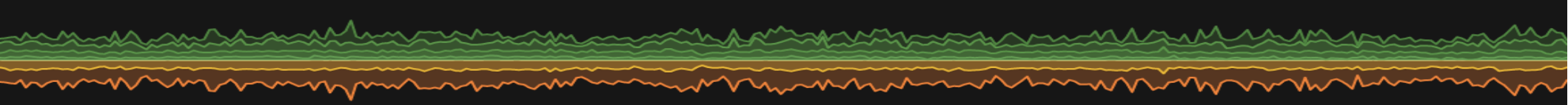

client side full page load
5.0 s
4.0 s
3.0 s
2.0 s
1.0 s
0 ms
13:40
13:50
14:00
14:10
14:20
14:30
avg
upper_25 3 ms
upper_50 97 ms
upper_75 520 ms
upper_90 1.100 s
upper_95 1.671 s


server requests
150
125
100
75
50
25
0
13:40
13:50
14:00
14:10
14:20
14:30
web_server_01
web_server_02
web_server_03
web_server_04



Grafana Project

- First Release Jan 2014
- 13 feature releases
- 7180 stars on github
- 1055 forks
- 201 contributers



OpenTSDB

Elasticsearch

Graphite

Cloudwatch

Data Sources

Prometheus

InfluxDB

KairosDB

Zabbix Gnocchi
OpenNMS DalmatinerDB
Druid

Demo

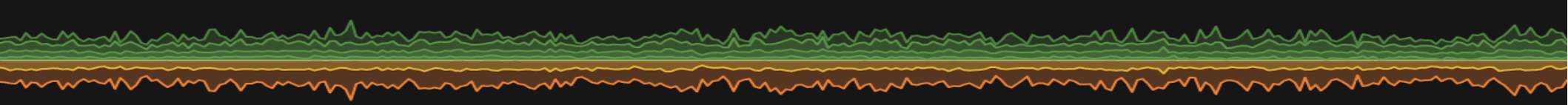
Feature Overview

- Advanced graphing
- Powerful query editors
- Dashboards
- Dynamic queries and dashboards
- Multi tenant user / organization support
- Client side & server side rendering of panels

Graphing features

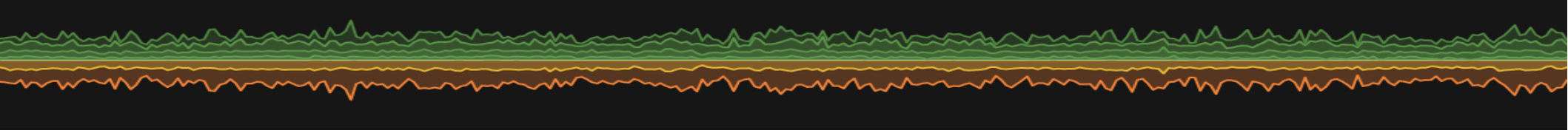
- Multiple y-axis
- Many many y-axis units and formats (bytes, SI units, etc)
- Bars, lines, points
- Series overrides
- Select region to zoom
- Legend values and placement options
- Multiple stack groups

Summary

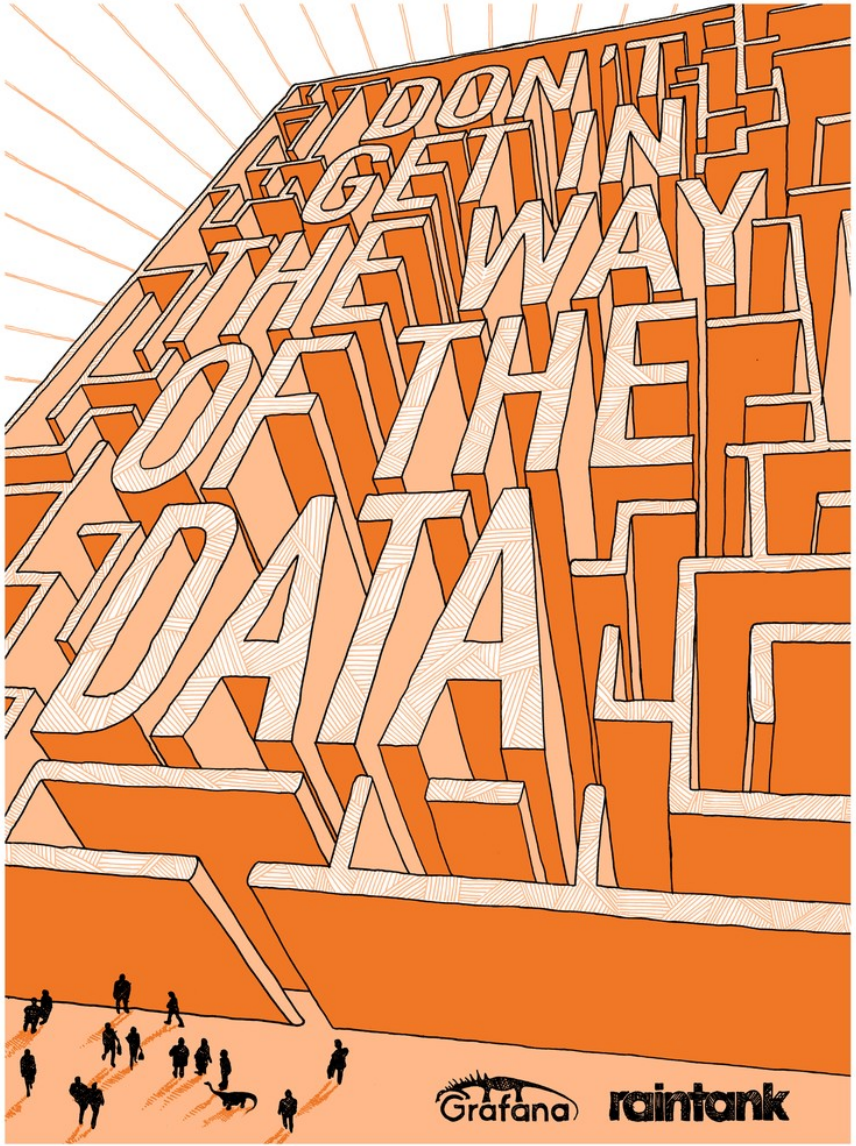


Observability

Metrics



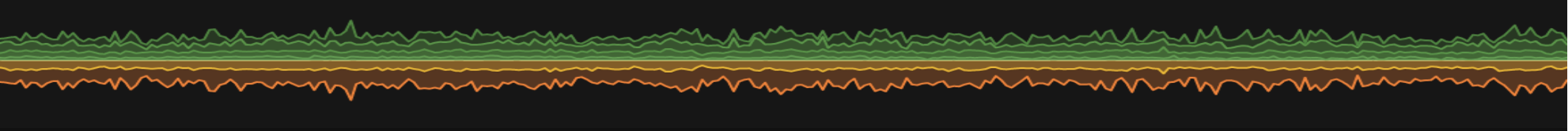
Power through UX


DON'T
GET IN
THE WAY
OF THE
DATA
Grafana
raintank

Page load plus
Server side page request time

Whats next for the Grafana Project

- More people
- More visualizations
- Alerting



Q & A

- grafana.org
- github.com/grafana/grafana
- @grafana
- @torkelo