# Datadog For Experts

2020

**Johnathan Fercher da Rosa - TMS**
**Marcos Pereira Júnior - Shipping Tax**


mercado livre

# Datadog ~~For Experts~~ in Taxes/TMS

2020

Johnathan Fercher da Rosa - TMS
Marcos Pereira Júnior - Shipping Tax


mercado livre

# Sumário

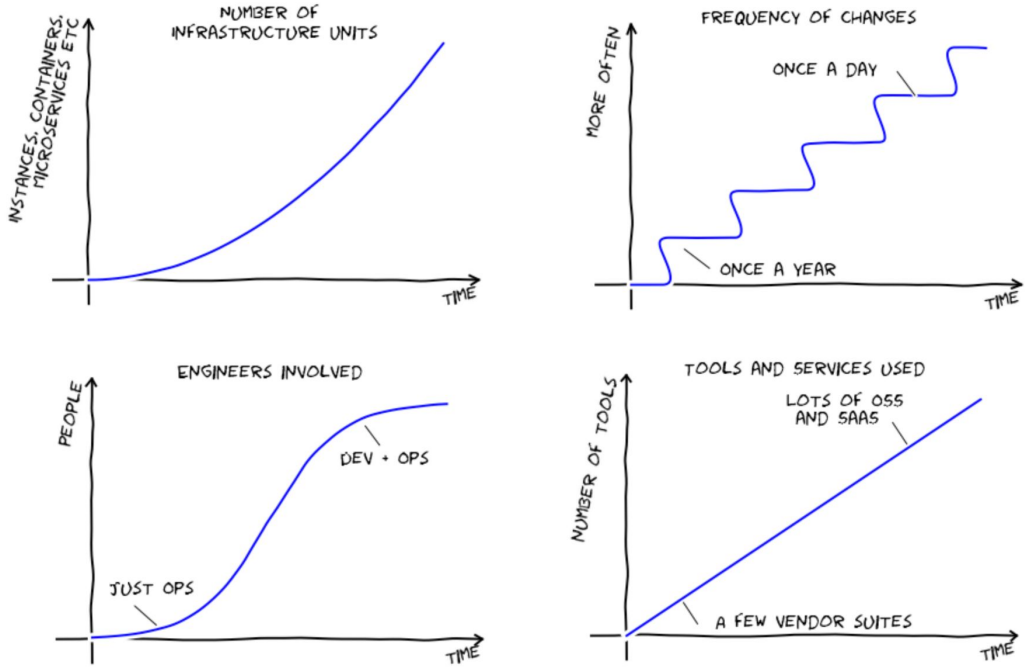
- Introdução
- Métricas
- Visualização
  - Criando graficos
- Alertas
  - Criando alertas e integrando com o Fury
  - Limitações
  - API

mercado livre

# Introdução


mercado livre

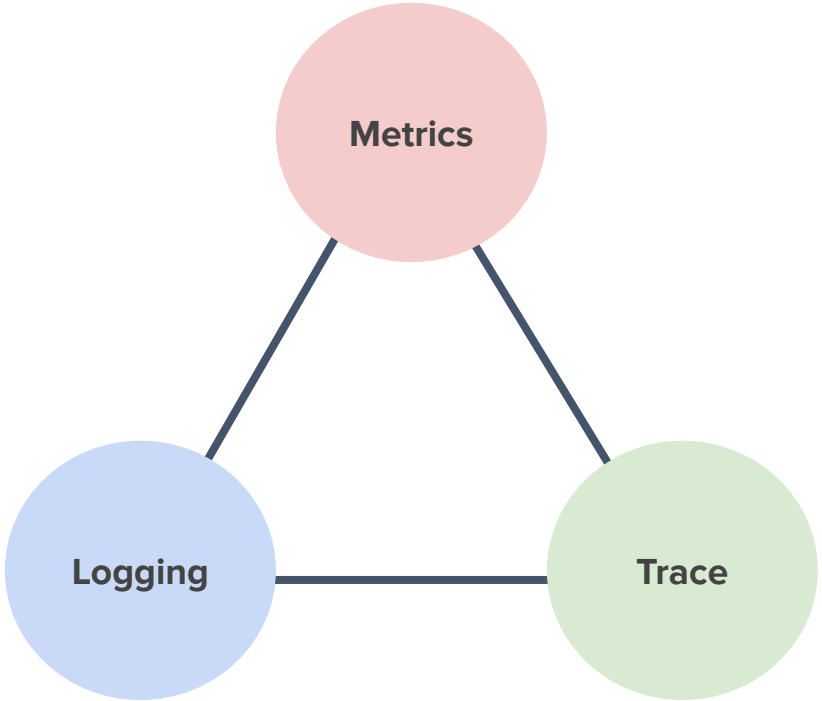
# Por que?




=> NEED FOR MONITORING AT SCALE

mercado livre

# Os Três Pilares da Observabilidade




mercado livre

# DataDog


*Datadog is a monitoring service for cloud-scale applications, providing monitoring of servers, databases, tools, and services, through a SaaS-based data analytics platform.*

mercado livre

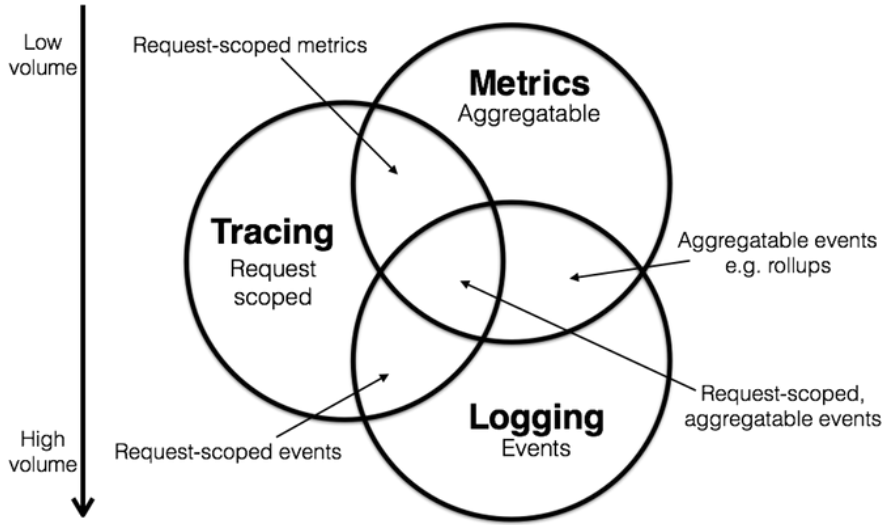
# Métricas


mercado livre

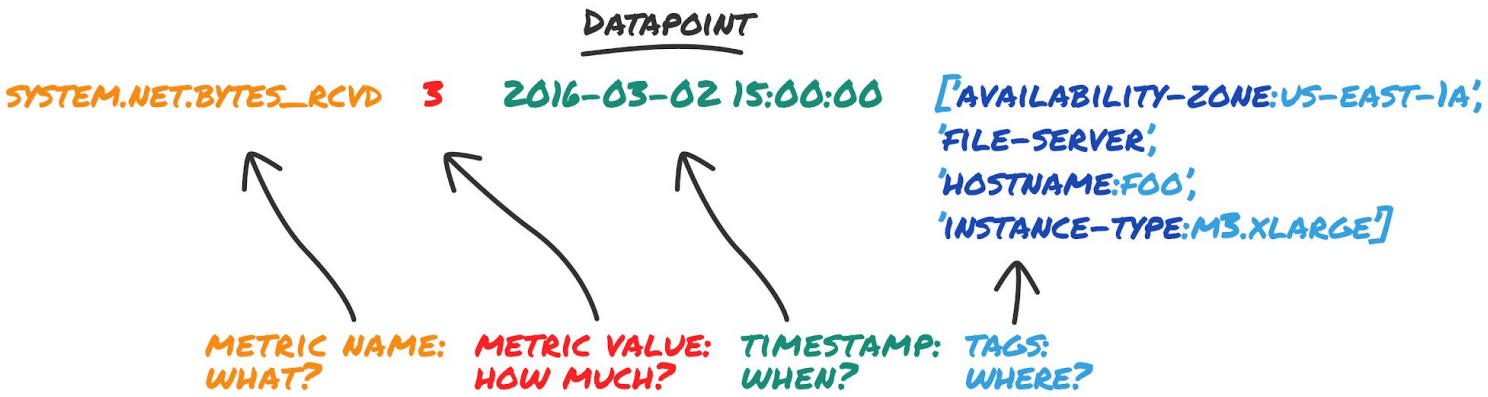
# Métricas

- Captura um valor referente aos seus sistemas em um momento específico.

- Coletado uma vez por segundo, um por minuto ou em outro intervalo regular para monitorar um sistema ao longo do tempo.



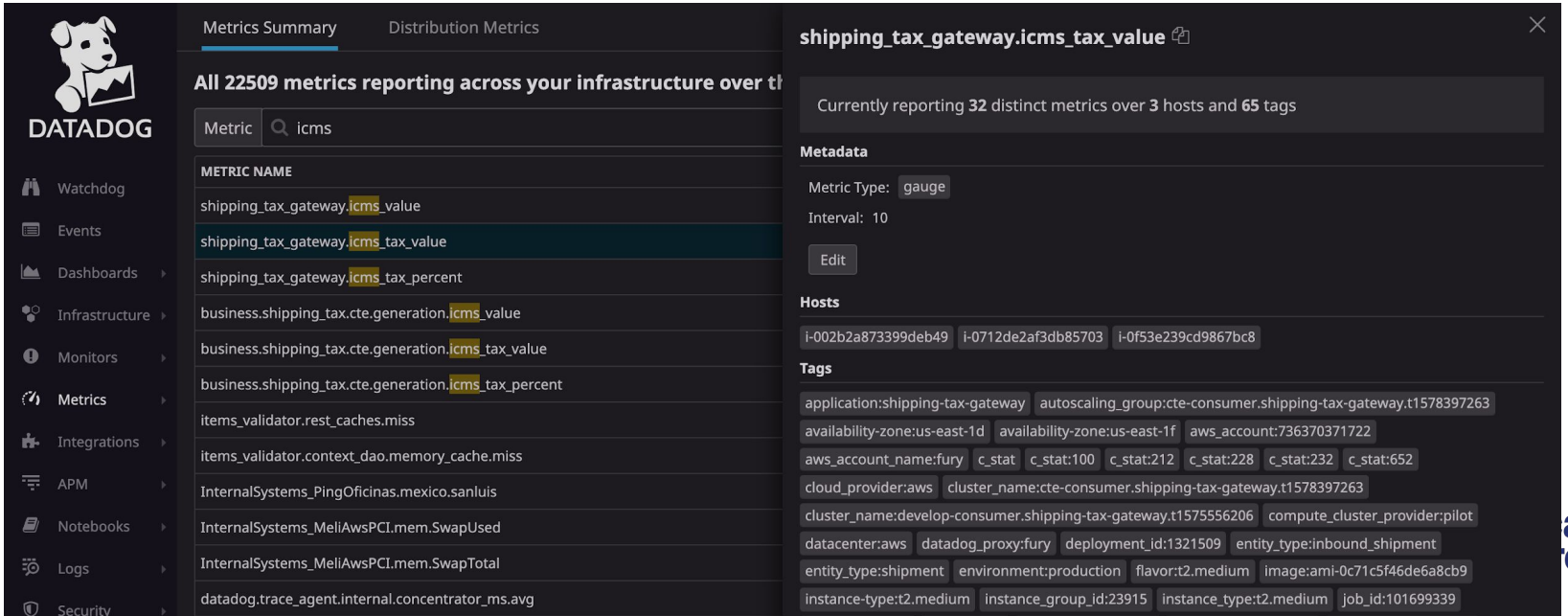
# Métricas



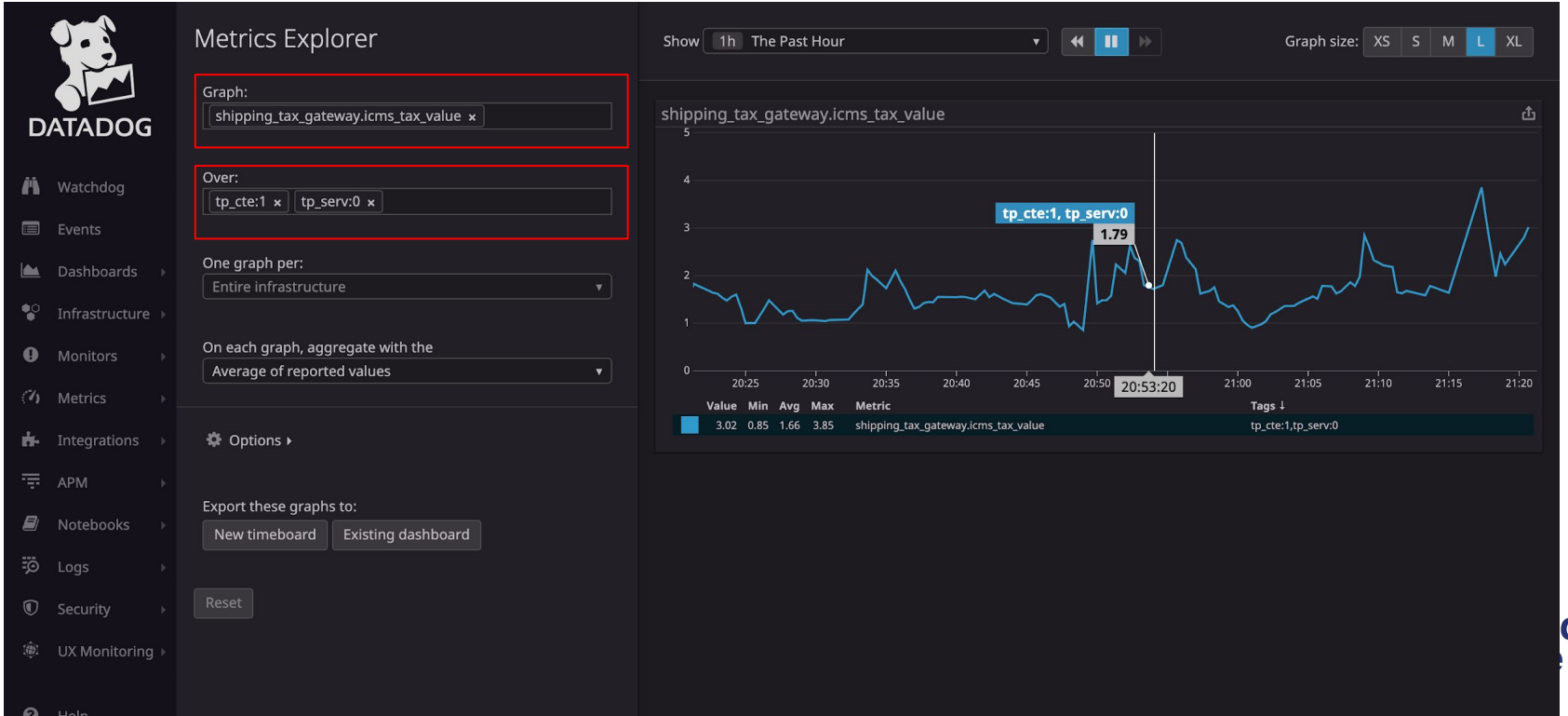

mercado livre

# Métricas

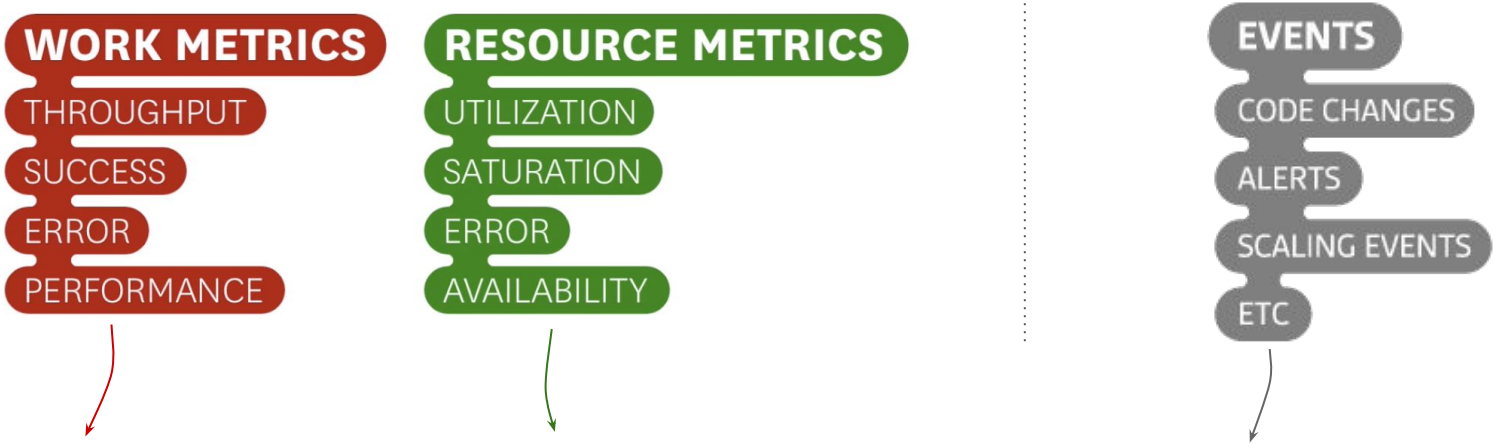
```
metrics.RecordCompoundMetric("icms_tax_value", 1.79, "tp_cte:1", "tp_serv:0")
```



# Métricas


DATADOG
Watchdog
Events
Dashboards
Infrastructure
Monitors
Metrics
Integrations
APM
Notebooks
Logs
Security
UX Monitoring
Metrics Explorer
Graph:
shipping_tax_gateway.icms_tax_value
Over:
tp_cte:1
tp_serv:0
One graph per:
Entire infrastructure
On each graph, aggregate with the
Average of reported values
Options
Export these graphs to:
New timeboard
Existing dashboard
Reset
Show
1h
The Past Hour
Graph size:
XS
S
M
L
XL
shipping_tax_gateway.icms_tax_value
tp_cte:1, tp_serv:0
1.79
20:53:20
Value
Min
Avg
Max
Metric
Tags
3.02
0.85
1.66
3.85
shipping_tax_gateway.icms_tax_value
tp_cte:1,tp_serv:0

# Categorias de Métricas




mercado livre

# Tipos de Métricas

- Count
- Rate
- Gauge

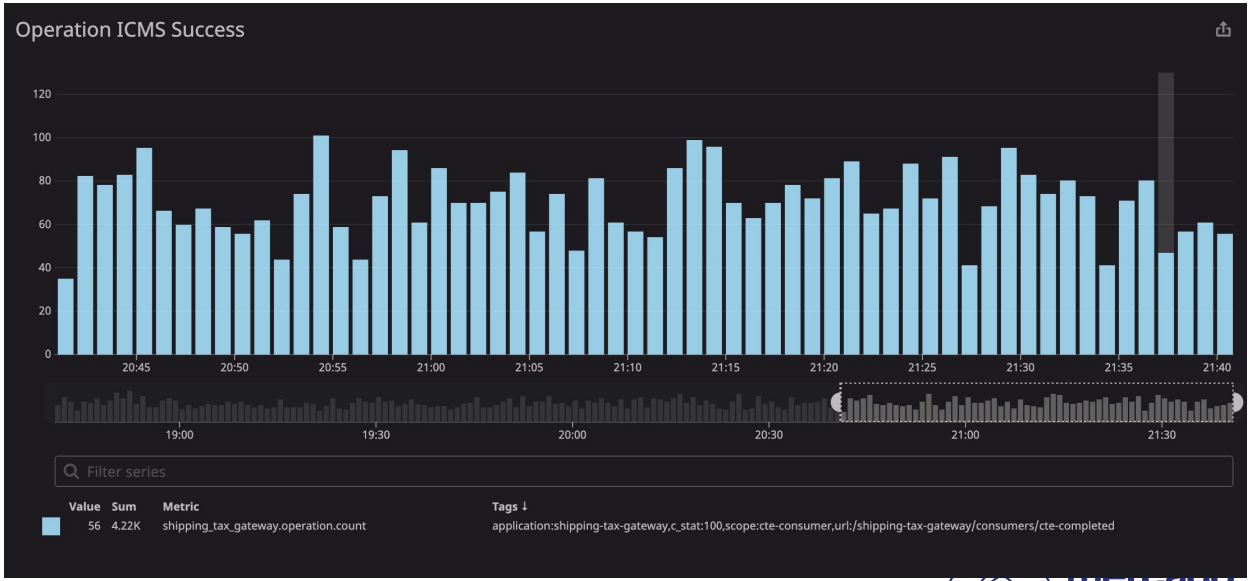
mercado livre

# Count

**Count**: representa o número de eventos que ocorrem em um intervalo de tempo definido.

Exemplos:

count(0) = 90
count(1) = 81
count(2) = 50



# Rate

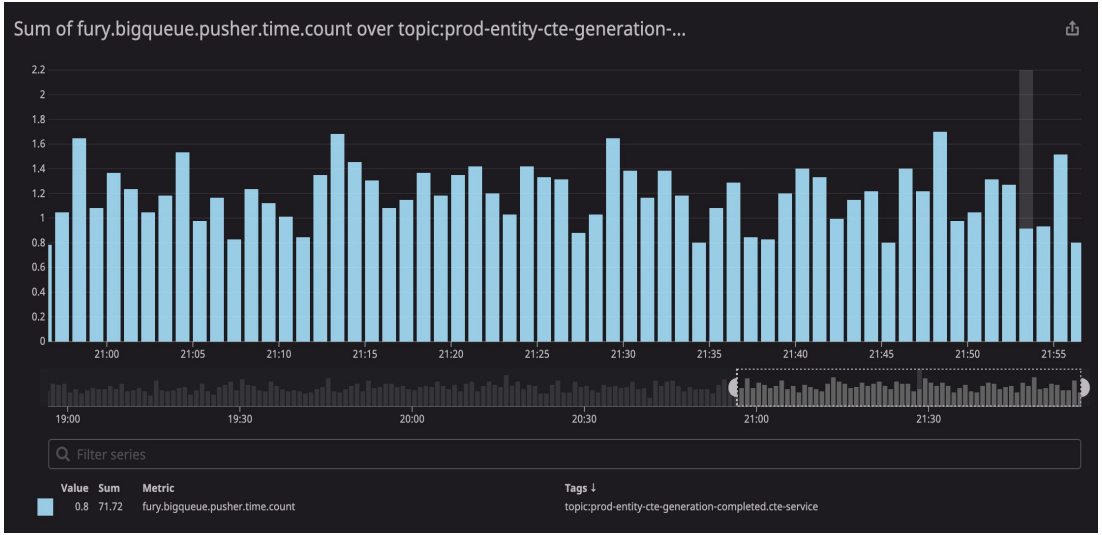
**Rate**: representa o número de eventos em um intervalo de tempo definido normalizado por segundo.

Rate = Count/Time (segundos)

Count = Número de mensagem
Time = 60 segundos

Exemplos:

rate(0) = 100/60 = 1.7
rate(1) = 90/60 = 1.5
rate(2) = 50/60 = 0.84




mercado livre

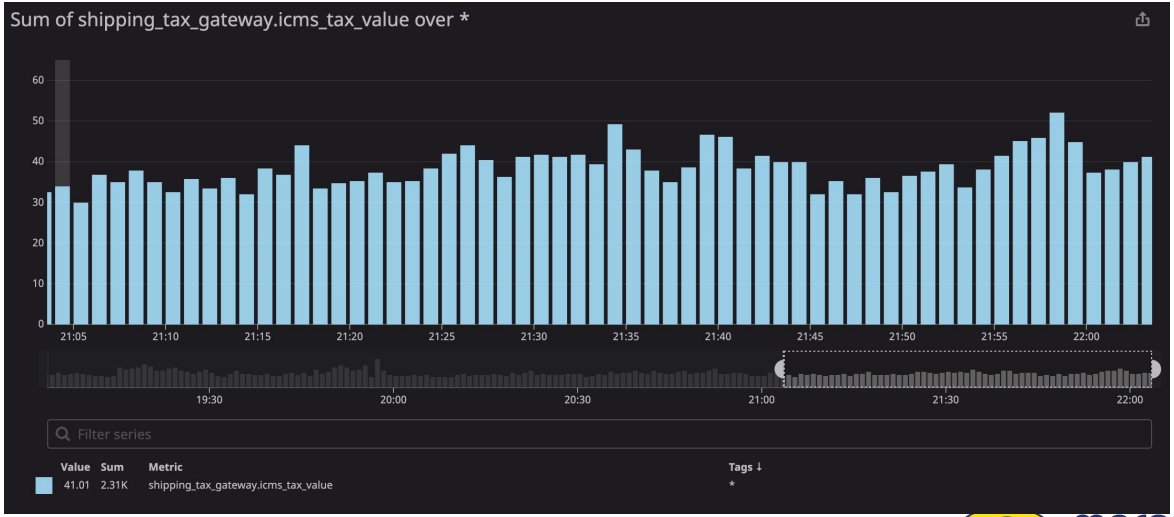
# Gauge

**Gauge**: representa o valor de uma determinada coisa que é reportada continuamente ao longo do tempo.

T(0) = 32.00


T(1) = 28.00


T(2) = 95.00

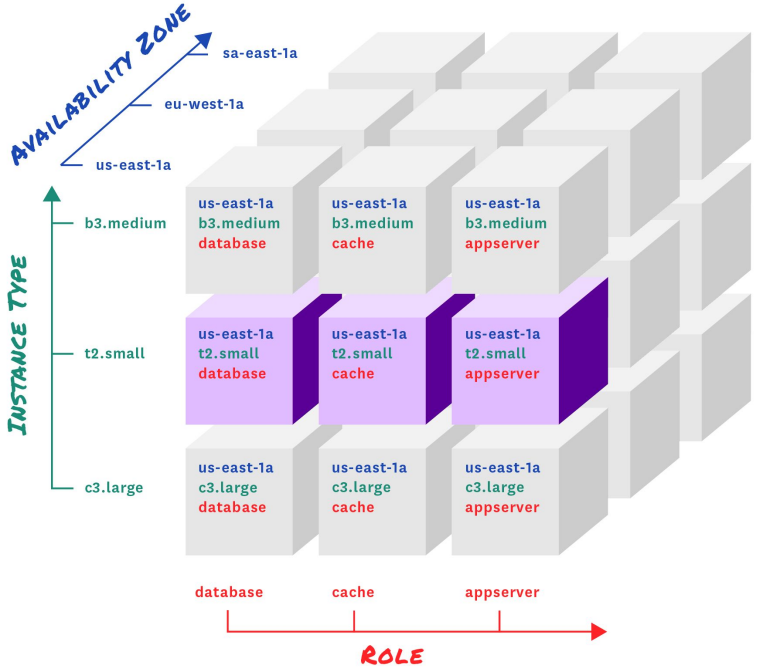



# Tags

As tags oferecem a flexibilidade de adicionar metadados às suas métricas em tempo real, sem modificar a maneira como suas métricas são coletadas.

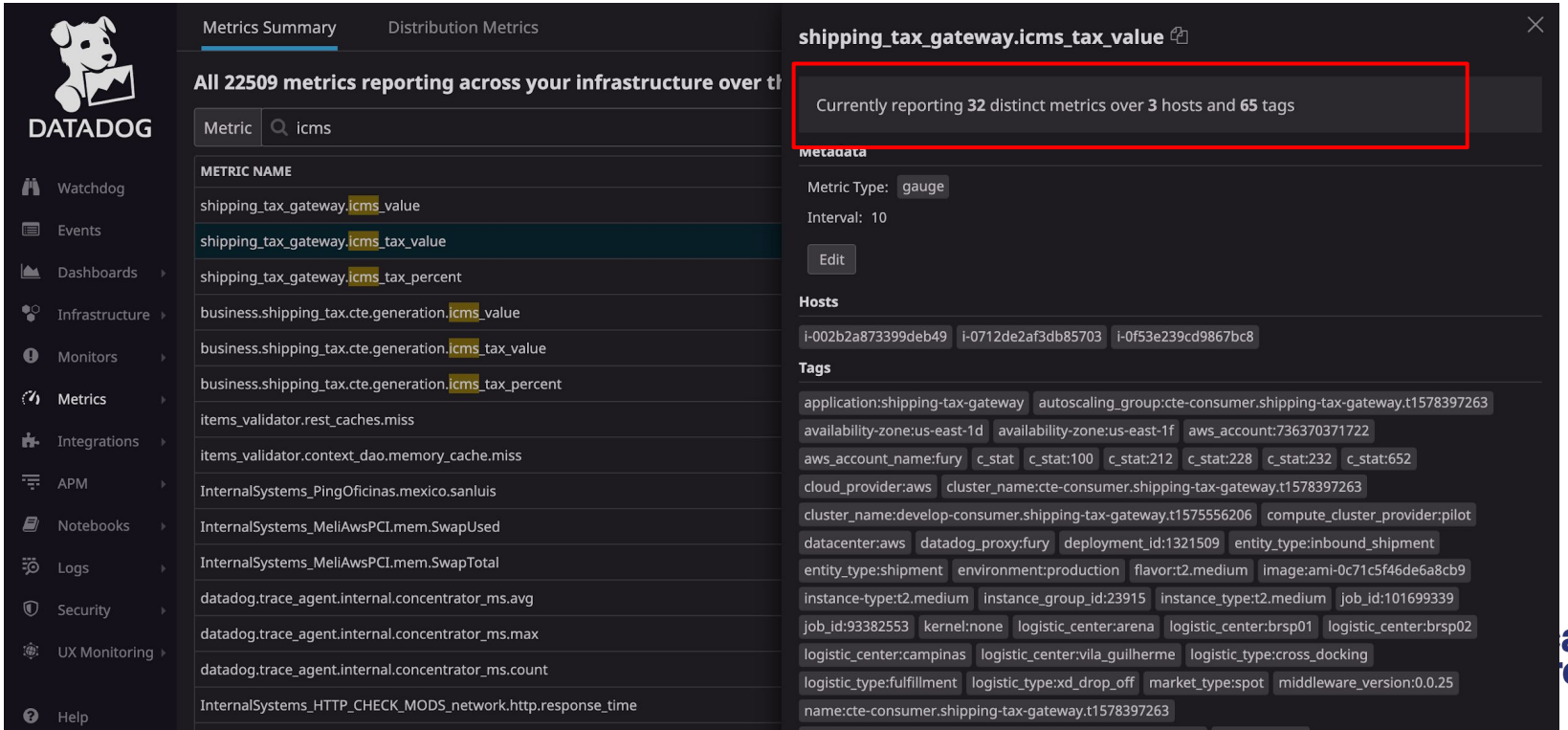
*Cuidados:*

*Tags shouldn't originate from unbounded sources, such as EPOCH timestamps, user IDs, or request IDs.* ***Doing so may infinitely increase the number of metrics for your organization and impact your billing****.*




mercado livre

# Tags


DATADOG
Watchdog
Events
Dashboards
Infrastructure
Monitors
Metrics
Integrations
APM
Notebooks
Logs
Security
UX Monitoring
Help
Metrics Summary
Distribution Metrics
All 22509 metrics reporting across your infrastructure over th
Metric
icms
METRIC NAME
shipping_tax_gateway.icms_value
shipping_tax_gateway.icms_tax_value
shipping_tax_gateway.icms_tax_percent
business.shipping_tax.cte.generation.icms_value
business.shipping_tax.cte.generation.icms_tax_value
business.shipping_tax.cte.generation.icms_tax_percent
items_validator.rest_caches.miss
items_validator.context_dao.memory_cache.miss
InternalSystems_PingOficinas.mexico.sanluis
InternalSystems_MeliAwsPCI.mem.SwapUsed
InternalSystems_MeliAwsPCI.mem.SwapTotal
datadog.trace_agent.internal.concentrator_ms.avg
datadog.trace_agent.internal.concentrator_ms.max
datadog.trace_agent.internal.concentrator_ms.count
InternalSystems_HTTP_CHECK_MODS_network.http.response_time
shipping_tax_gateway.icms_tax_value
Currently reporting 32 distinct metrics over 3 hosts and 65 tags
Metadata
Metric Type: gauge
Interval: 10
Edit
Hosts
i-002b2a873399deb49
i-0712de2af3db85703
i-0f53e239cd9867bc8
Tags
application:shipping-tax-gateway
autoscaling_group:cte-consumer.shipping-tax-gateway.t1578397263
availability-zone:us-east-1d
availability-zone:us-east-1f
aws_account:736370371722
aws_account_name:fury
c_stat
c_stat:100
c_stat:212
c_stat:228
c_stat:232
c_stat:652
cloud_provider:aws
cluster_name:cte-consumer.shipping-tax-gateway.t1578397263
cluster_name:develop-consumer.shipping-tax-gateway.t1575556206
compute_cluster_provider:pilot
datacenter:aws
datadog_proxy:fury
deployment_id:1321509
entity_type:inbound_shipment
entity_type:shipment
environment:production
flavor:t2.medium
image:ami-0c71c5f46de6a8cb9
instance-type:t2.medium
instance_group_id:23915
instance_type:t2.medium
job_id:101699339
job_id:93382553
kernel:none
logistic_center:arena
logistic_center:brsp01
logistic_center:brsp02
logistic_center:campinas
logistic_center:vila_guilherme
logistic_type:cross_docking
logistic_type:fulfillment
logistic_type:xd_drop_off
market_type:spot
middleware_version:0.0.25
name:cte-consumer.shipping-tax-gateway.t1578397263

# Retenção

| | | | | | |
|---|---|---|---|---|---|
| Custom Metrics (Agent check) | Datadog Agent + custom Agent check | 15 secs | 1 s | 15 months | Infrastructure |
| Custom Metrics (StatsD) | Datadog Agent (built-in statsD collector) | 15 secs | 1 s | 15 months | Infrastructure |
| Custom Metrics (API) | POST directly to Datadog's API | Real time | 1 s | 15 months | Infrastructure |
| Events | Datadog Agent, integrations, or API | Real time | 1 s | 15 months | Infrastructure |
| Traces (Sampled) | Datadog Agent + tracing library | Real time | 1 micro sec | See traces retention documentation | APM |
| Trace Metrics (Unsampled) | Datadog Agent + tracing library | Real time | 1 micro sec | 15 months | APM |

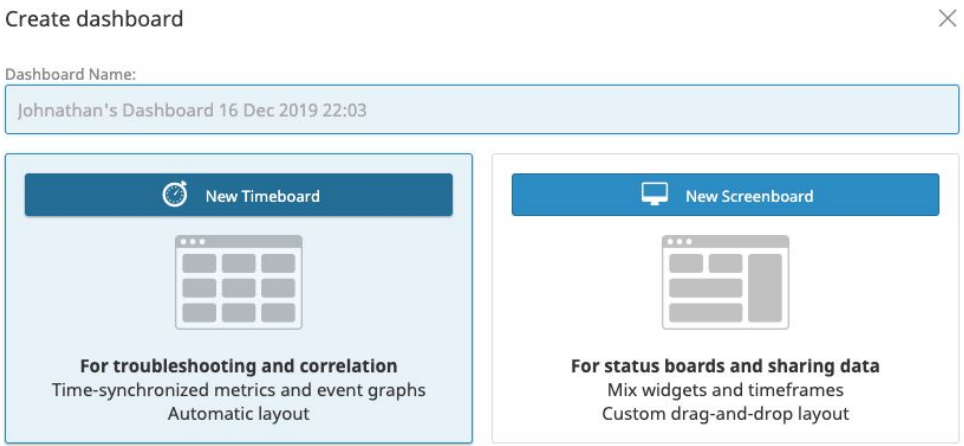
mercado livre

# Visualização


mercado livre

# Criando Dashboards

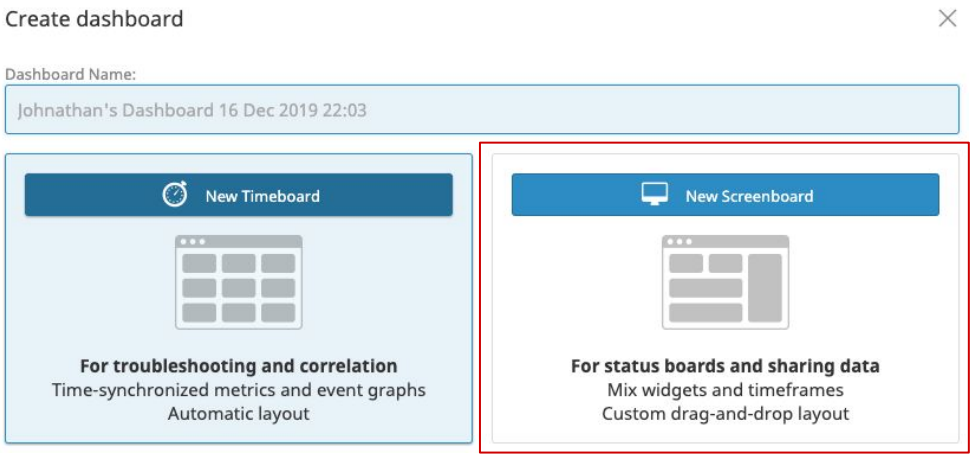
- Datadog > Dashboards > New Dashboard




mercado livre

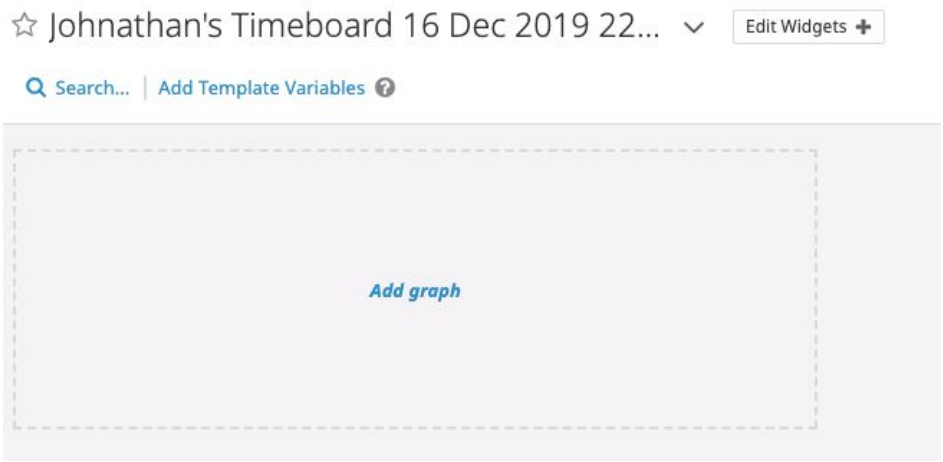
# Criando Dashboards

- Datadog > Dashboards > New Dashboard




mercado livre

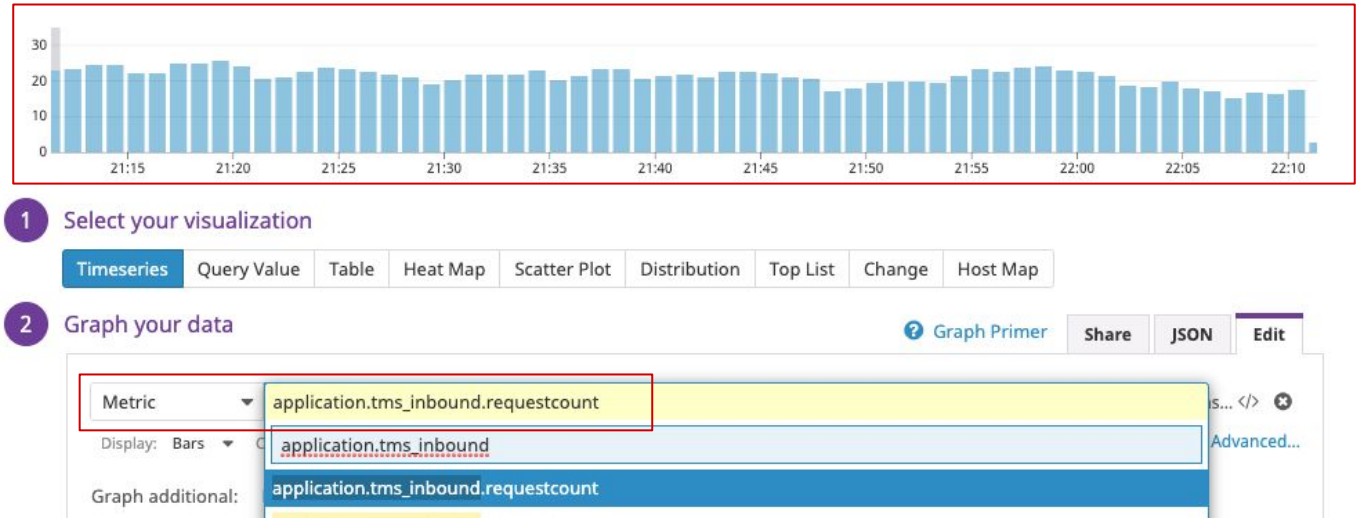
# Adicionando um Gráfico



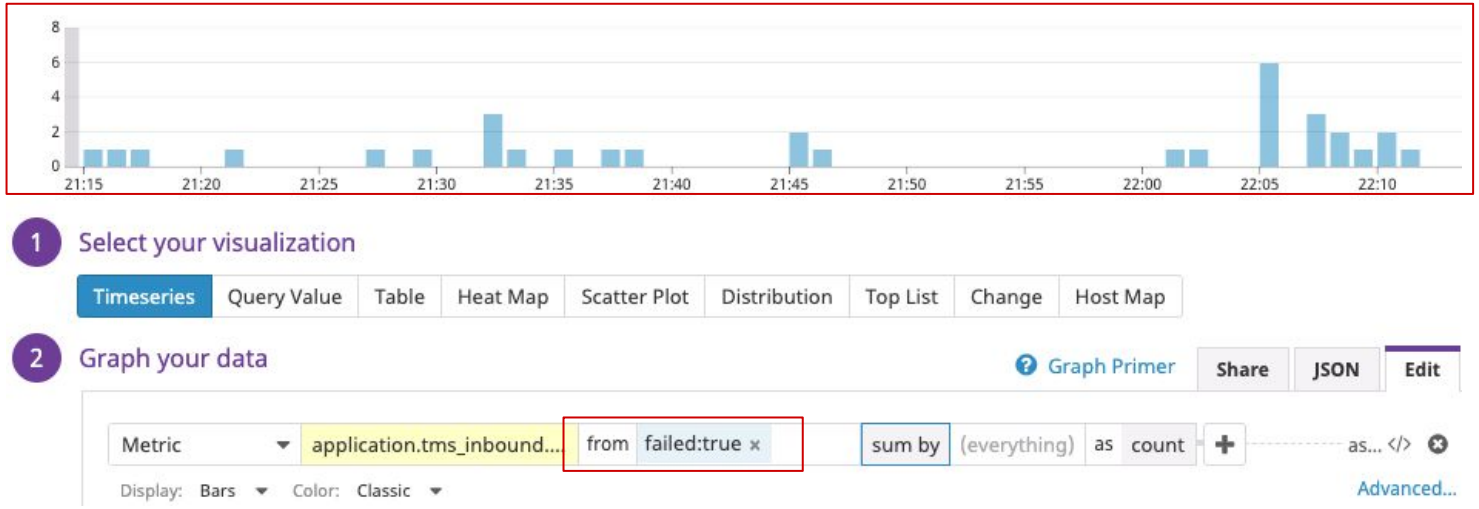
# Adicionando um Gráfico


mercado livre

# Escolhendo uma Métrica

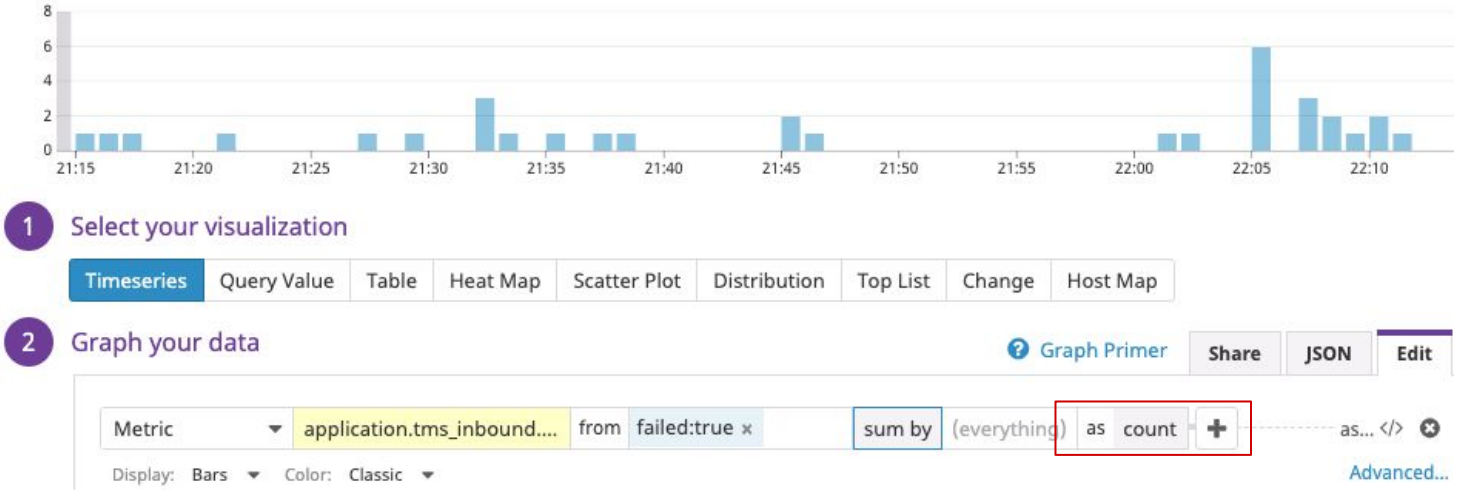


# Configurando uma Métrica

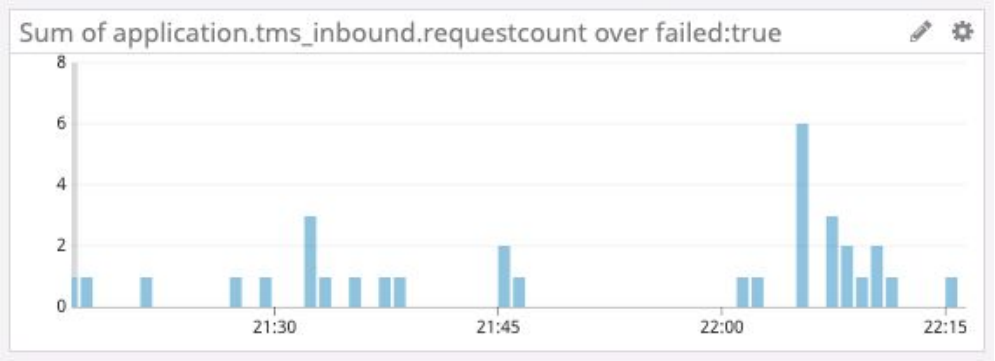


# Configurando uma Métrica

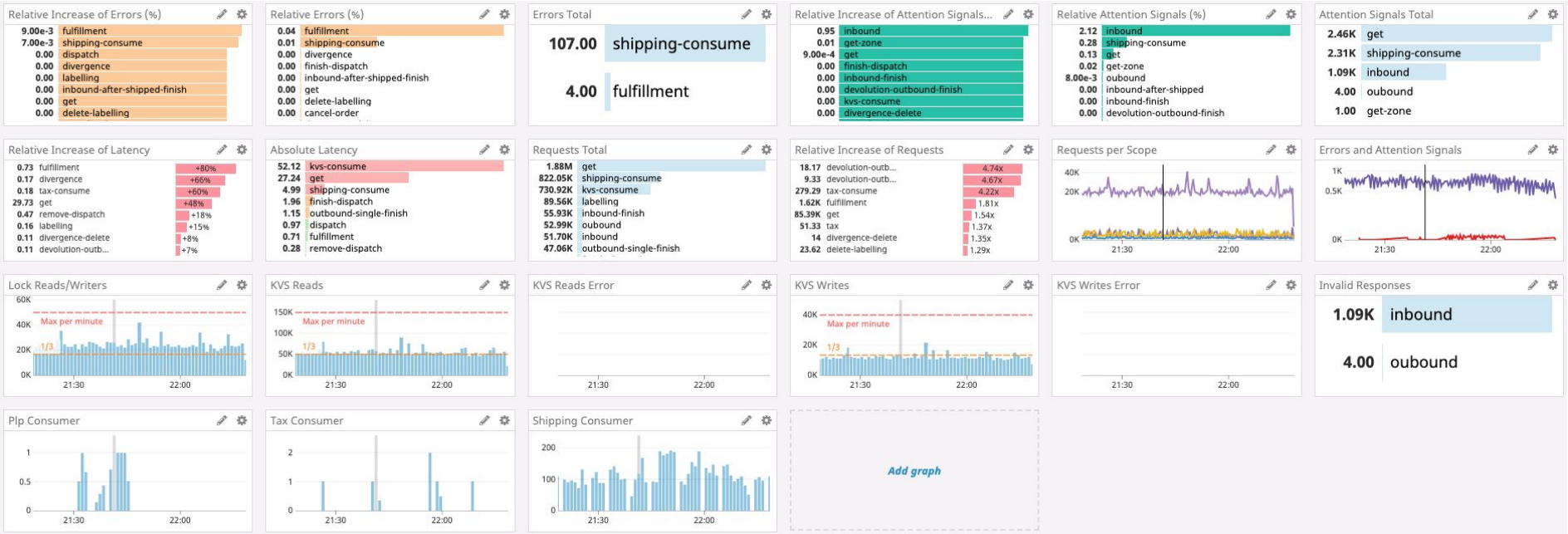
# Configurando uma Métrica



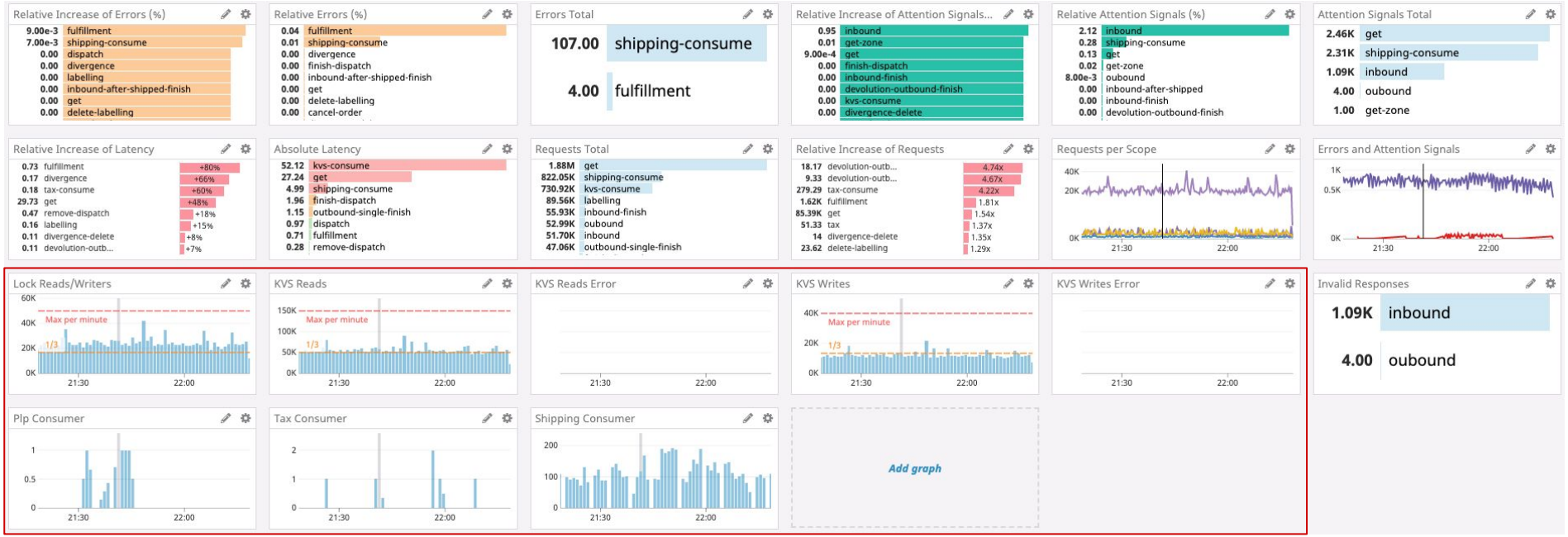
# Resultado


Sum of application.tms_inbound.requestcount over failed:true
8
6
4
2
0
21:30
21:45
22:00
22:15

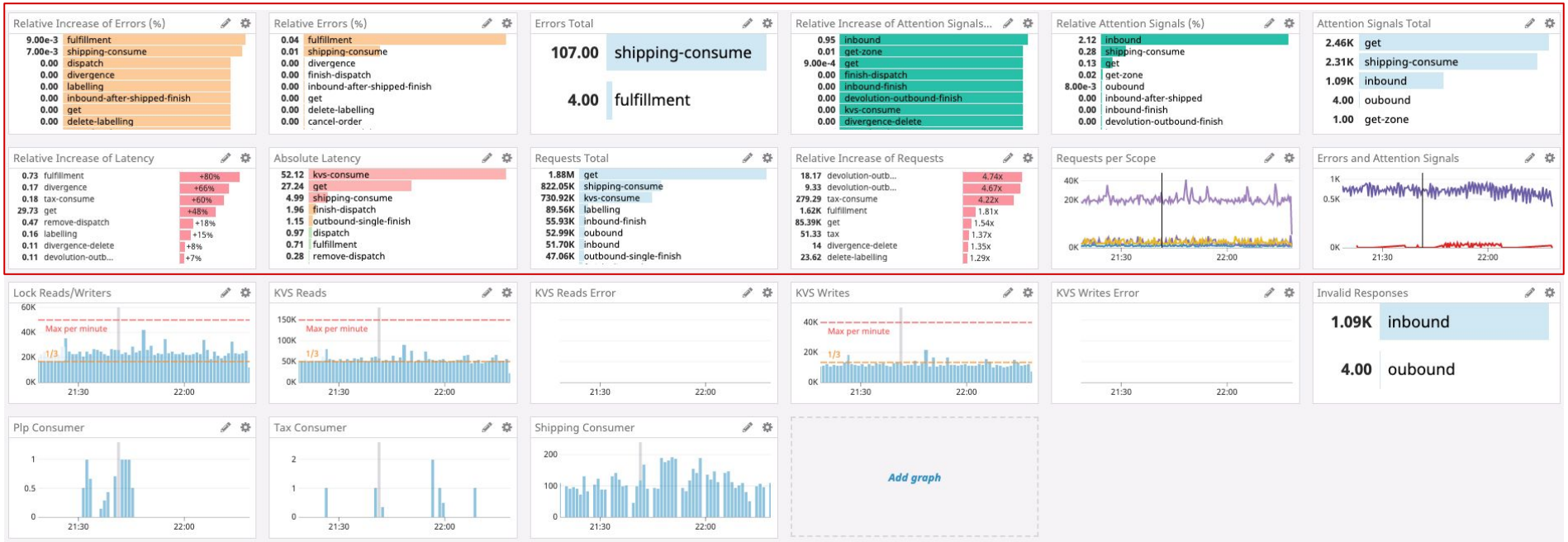
# Ampliando o Poder de Análise



# Ampliando o Poder de Análise



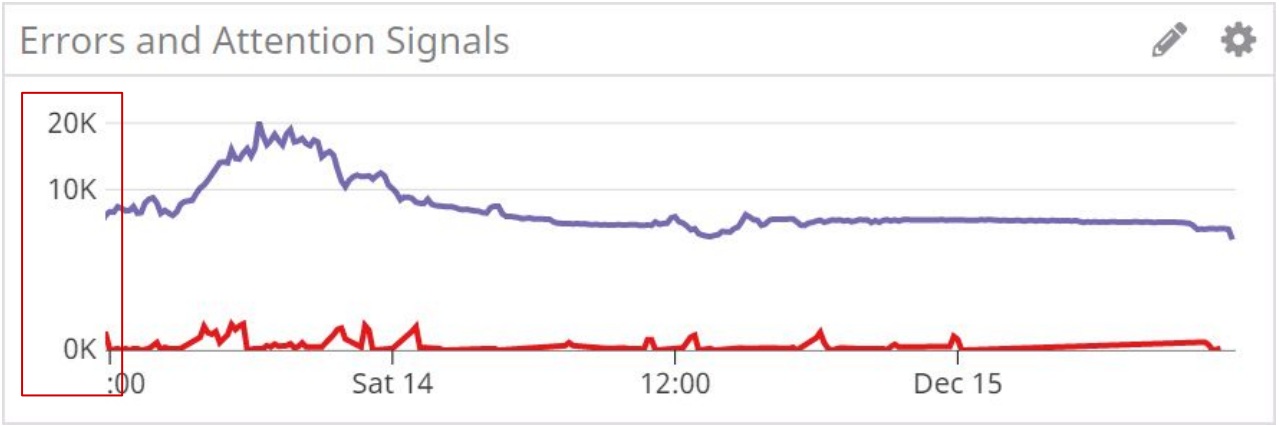
# Ampliando o Poder de Análise




mercado livre

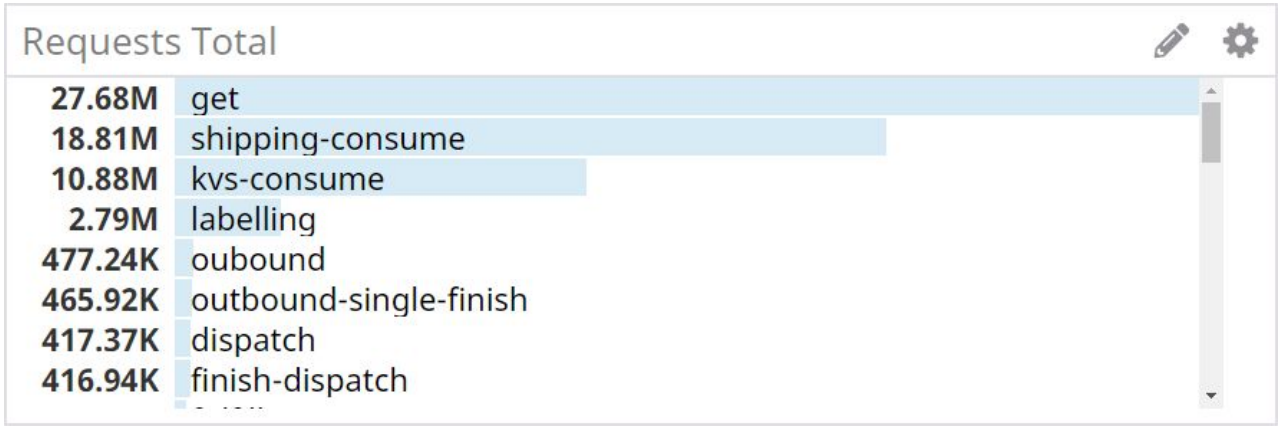
# Timeseries

- Use quando: Poucas fontes de dados, dados relacionados, mesma métricas para diferentes escopos
- Evite quando: Muitas fontes de dados, métricas esparçadas



# Top list

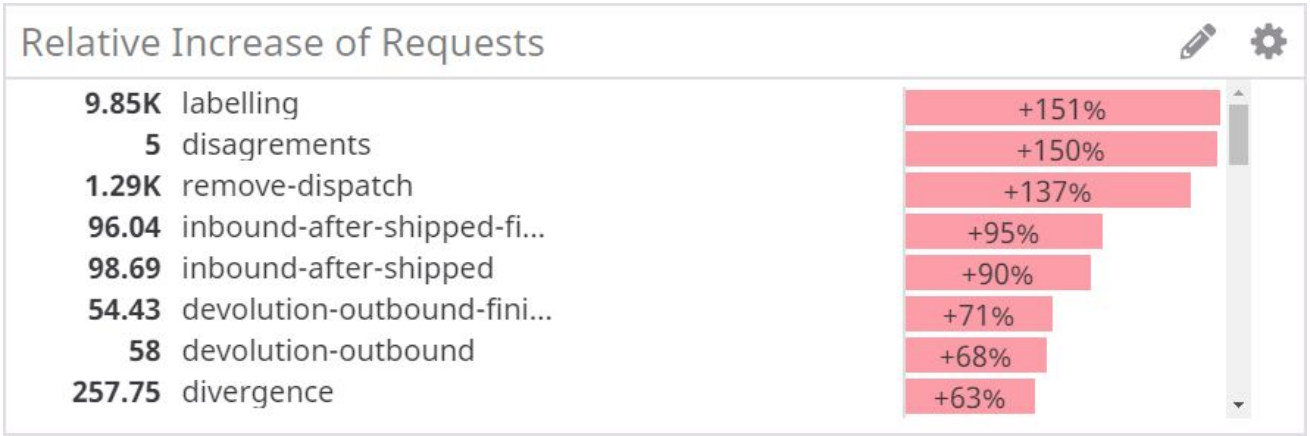
- Use quando: métricas customizadas, ranking de consumo/performance
- Evite quando: valores negativos




mercado livre

# Change

- Use quando: métricas cíclicas
- Evite quando: métricas estáticas



# Query value

- Use quando: Métrica única
- Evite quando: Não representar todas as possibilidades

# Table

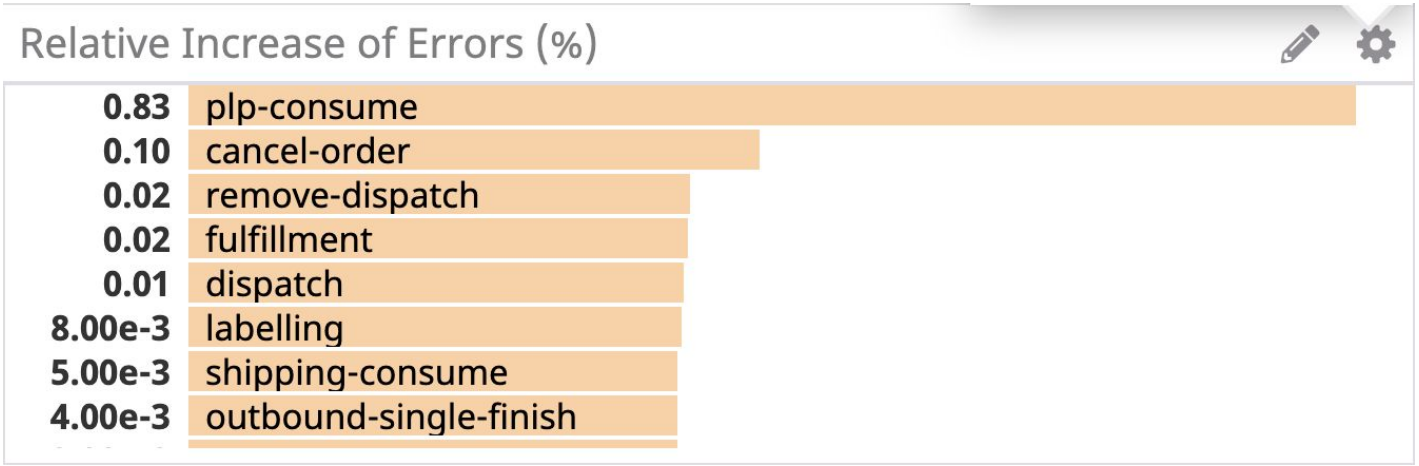
- Use quando: ranking de custo/performance agregados com por mais de um label
- Evite quando: ranking possuir somente um label

Sent TMS Notifications

| CODE | HTTP_STATUS | TOTAL |
|---|---|---|
| 0203 | 200 | 504K |
| 0011 | 200 | 395.1K |
| 0003 | 400 | 316.05K |
| 0003 | 200 | 242.25K |
| 0011 | 400 | 4.37K |

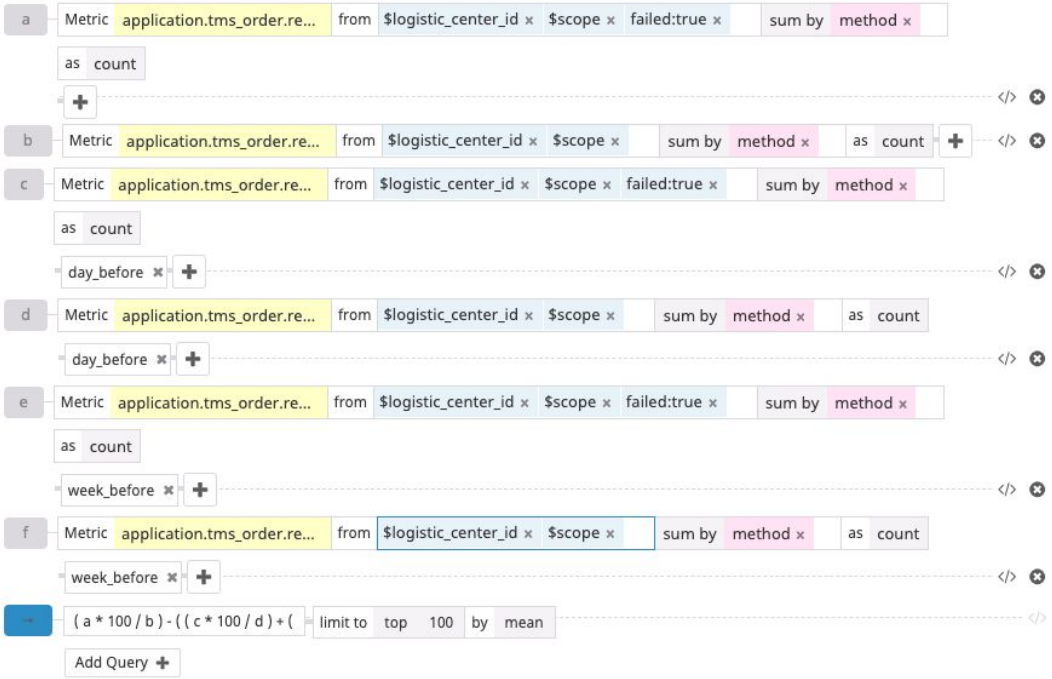
mercado livre

# Customizando Gráficos




mercado livre

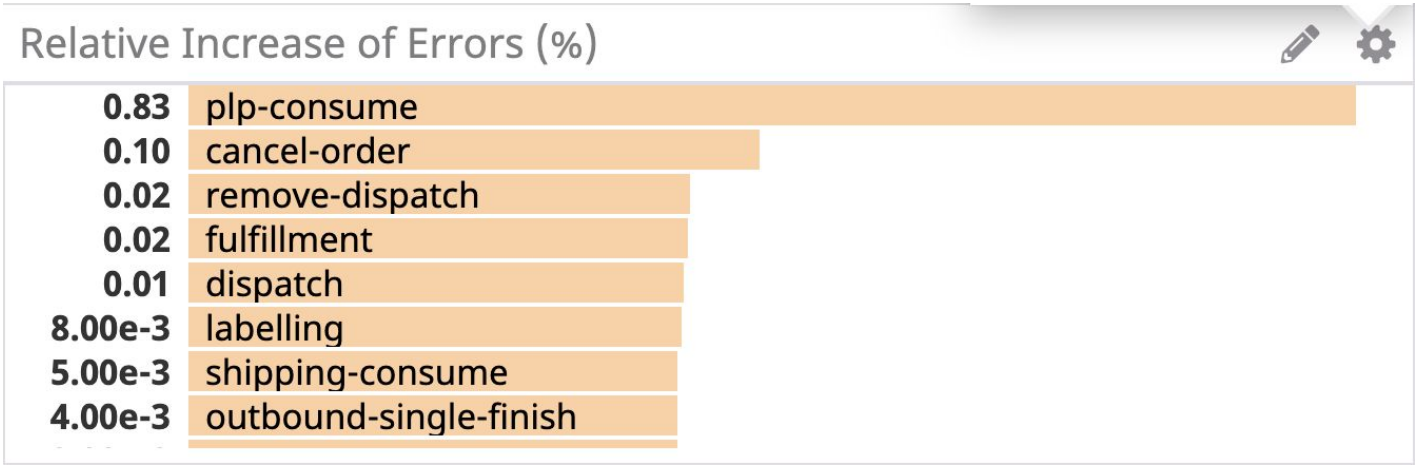
# Customizando Gráficos




( a * 100 / b ) - ( ( c * 100 / d ) + ( e * 100 / f ) ) / 2

mercado livre

# Customizando Gráficos

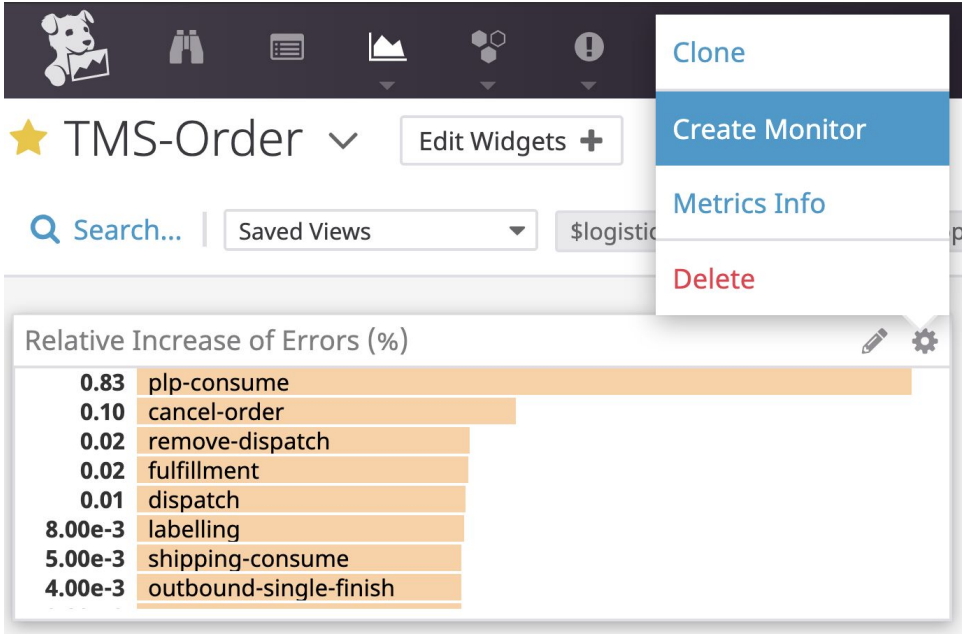



mercado livre

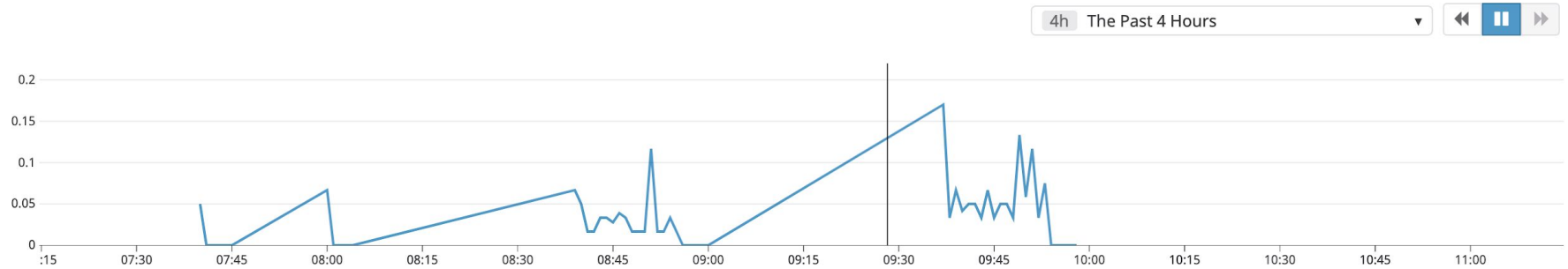
# Alertas


mercado livre

# Criando Alertas



# Criando Alertas



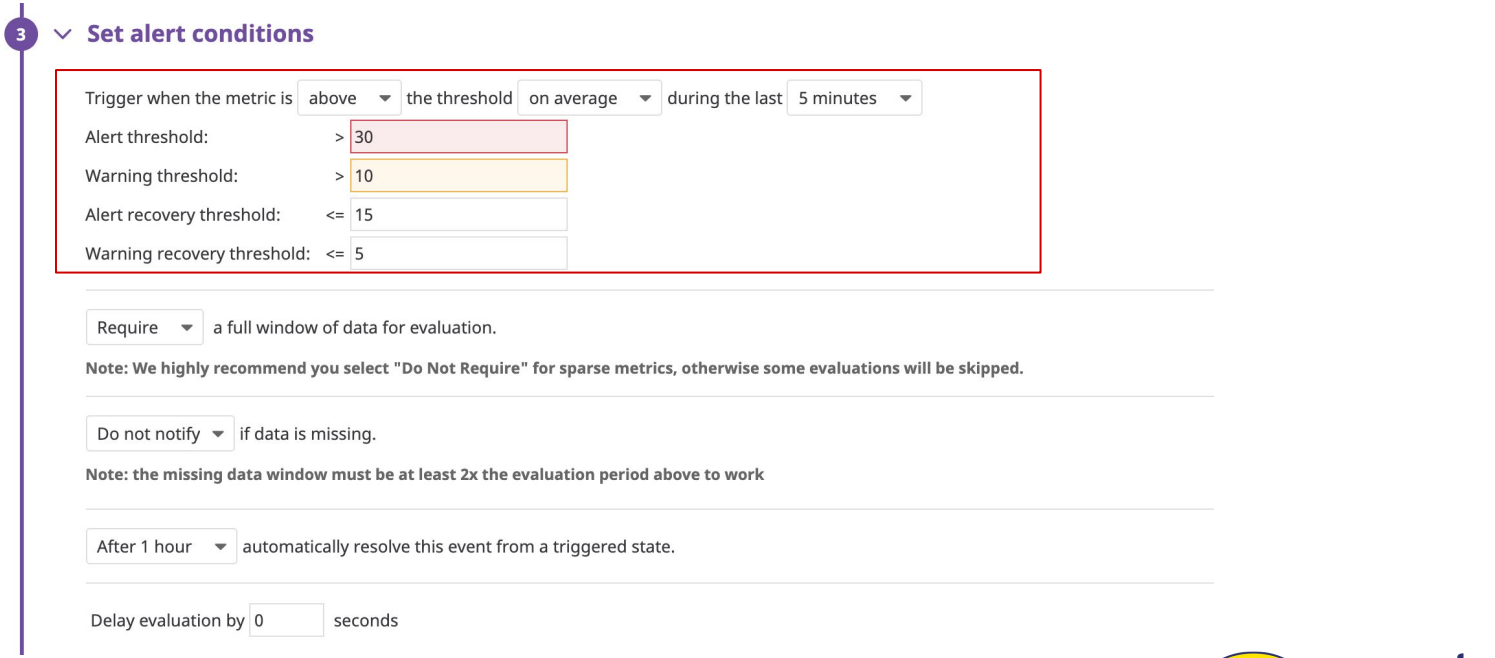

1 Choose the detection method

Threshold Alert | Change Alert | Anomaly Detection | Outliers Alert | Forecast Alert

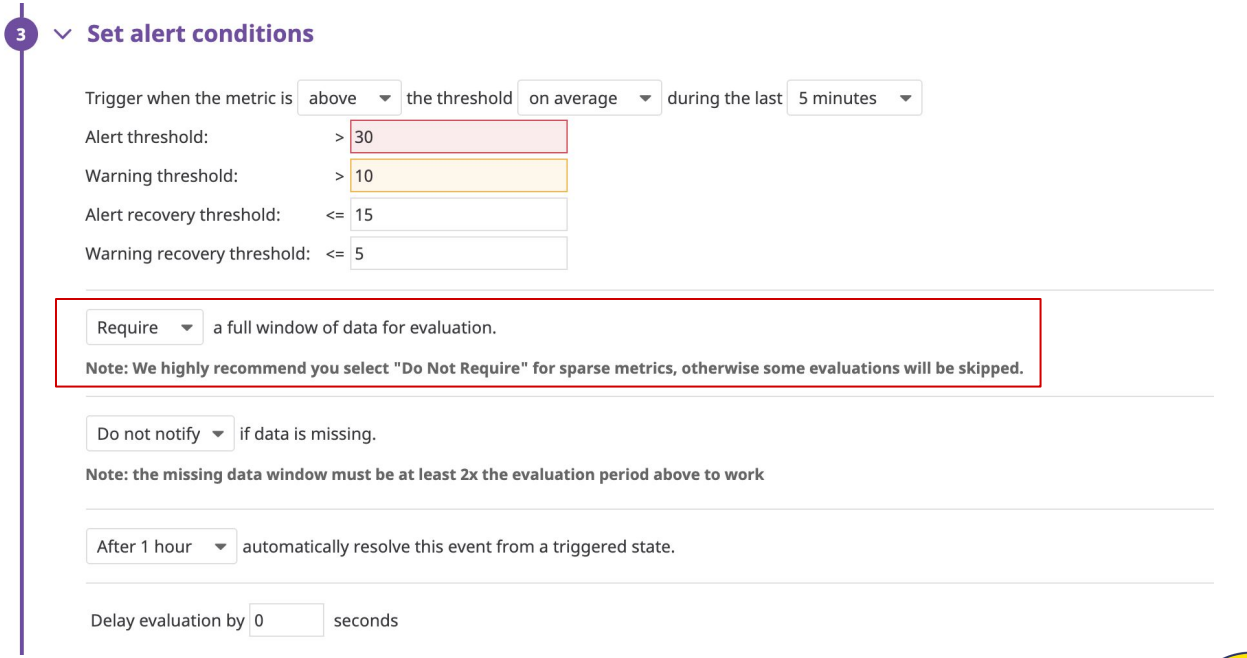
An alert is triggered whenever a metric crosses a threshold.

mercado livre

# Criando Alertas

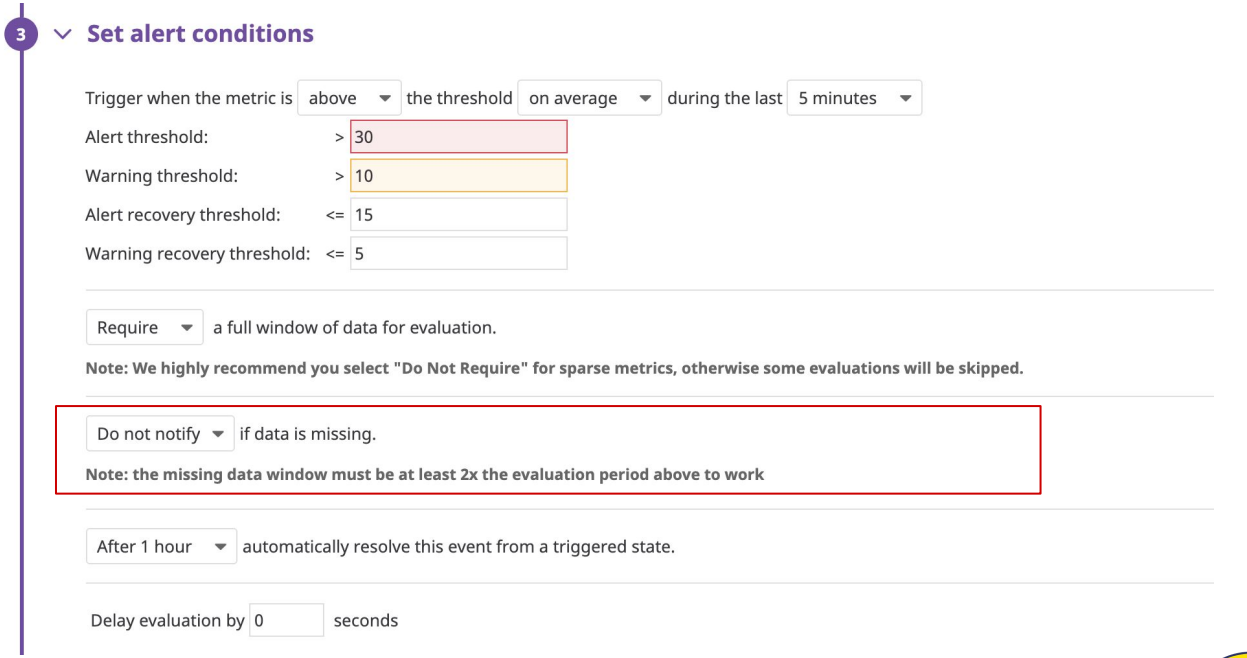


# Criando Alertas



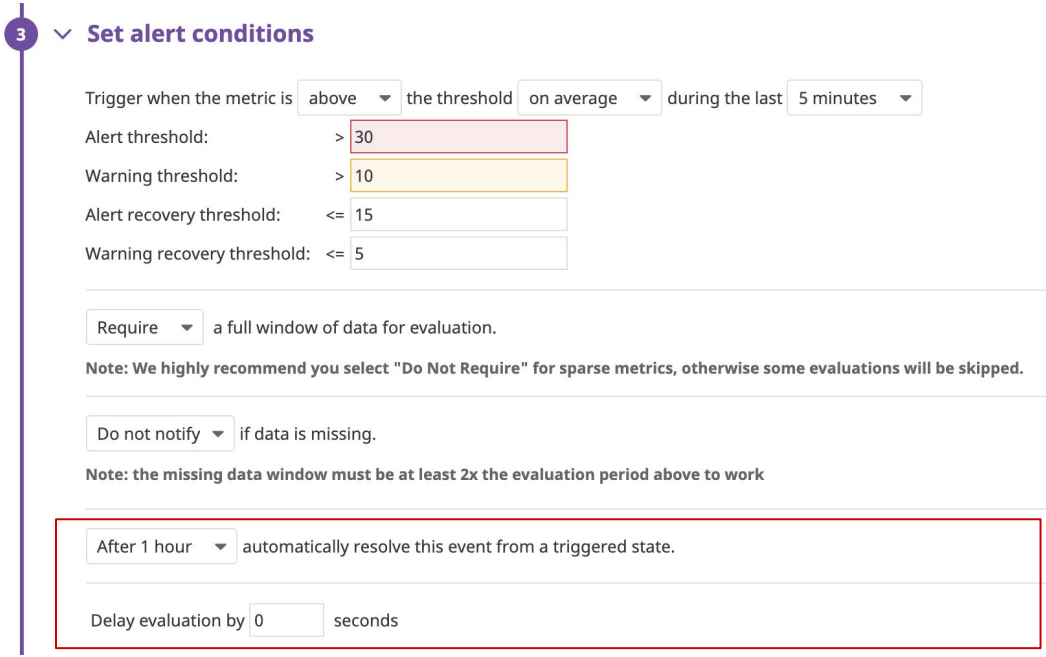

mercado livre

# Criando Alertas




mercado livre

# Criando Alertas




mercado livre

# Criando Alertas

4 Say what's happening

Preview | Edit

Deu xabu

Deu ruim

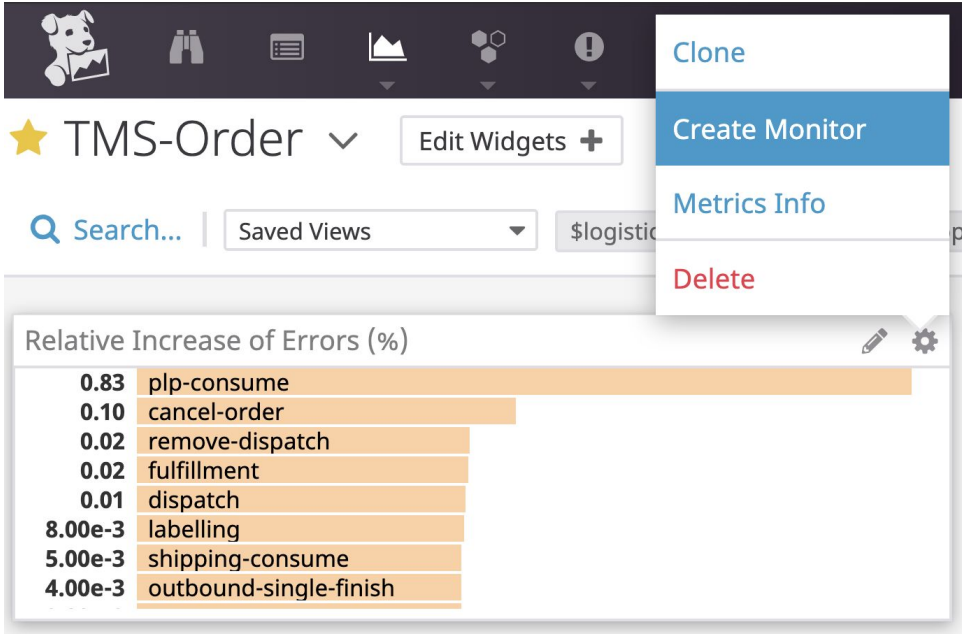
@opsgenie-tms_guardia
@johnathan.fercher@mercadolivre.com
@chama.o.xamu

Tags: Select or add related tags

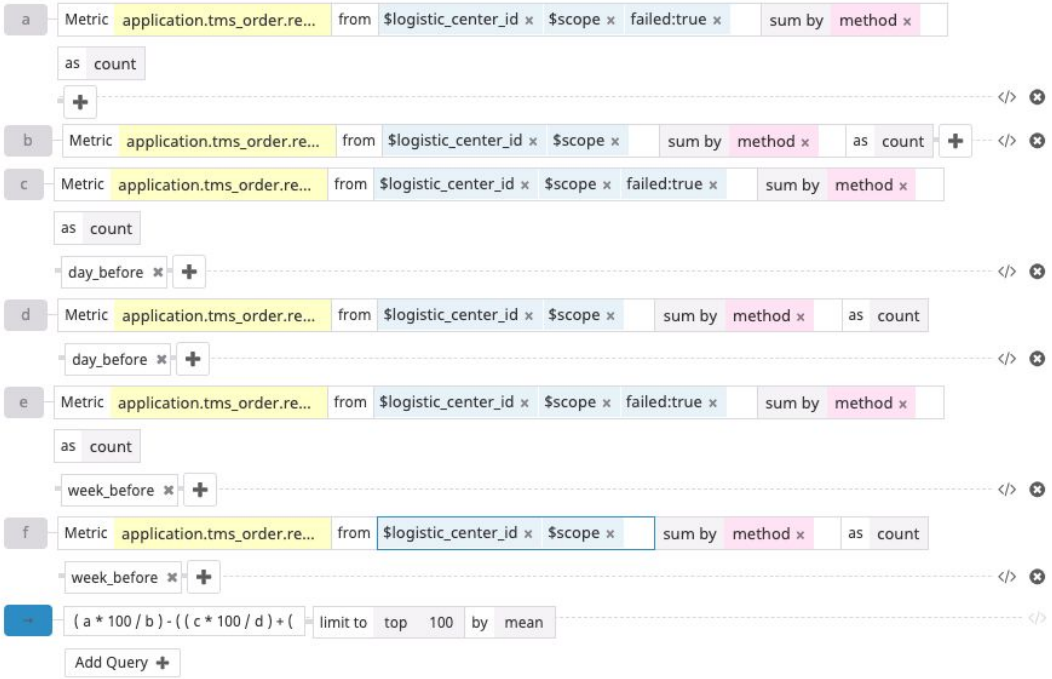
[Never] renotify if the monitor has not been resolved.

mercado livre

# Criando Alertas



# Limitações




( a * 100 / b ) - ( ( c * 100 / d ) + ( e * 100 / f ) ) / 2

# Limitações

## Select a metric to monitor

**Select the metric you want to create a monitor for:**

- (•) sum:application.tms_order.requestcount{$logistic_center_id,$scope,failed:true} by {method}.as_count()
- ( ) sum:application.tms_order.requestcount{$logistic_center_id,$scope} by {method}.as_count()
- ( ) day_before(sum:application.tms_order.requestcount{$logistic_center_id,$scope,failed:true} by {method}.as_count())
- ( ) day_before(sum:application.tms_order.requestcount{$logistic_center_id,$scope} by {method}.as_count())
- ( ) week_before(sum:application.tms_order.requestcount{$logistic_center_id,$scope,failed:true} by {method}.as_count())
- ( ) week_before(sum:application.tms_order.requestcount{$logistic_center_id,$scope} by {method}.as_count())

Cancel | Create Monitor

mercado livre

# API

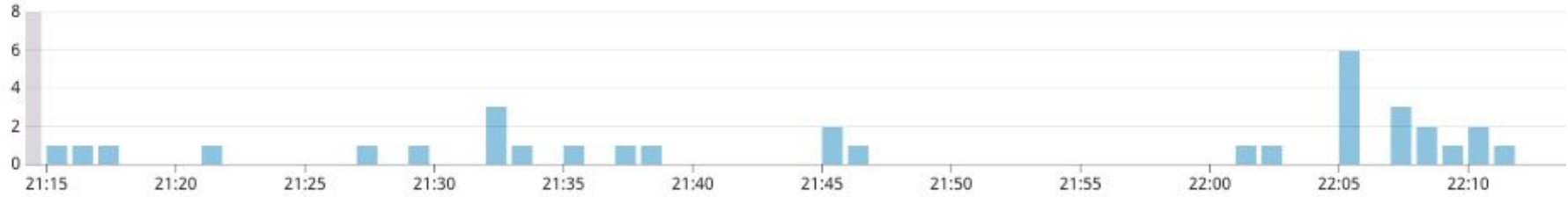

mercado livre

# API

```
from datadog import initialize, api
import time

options = {
    'api_key': '<YOUR_API_KEY>',
    'app_key': '<YOUR_APP_KEY>'
}

initialize(**options)

now = int(time.time())

query = 'system.cpu.idle{*}by{host}'
print(api.Metric.query(start=now - 3600, end=now, query=query))
```

mercado livre

# API




1 Select your visualization

Timeseries | Query Value | Table | Heat Map | Scatter Plot | Distribution | Top List | Change | Host Map

2 Graph your data

Graph Primer | Share | JSON | Edit

Metric | sum:application.tms_inbound.requestcount{failed:true}.as_count() | as...

Display: Bars | Color: Classic | Advanced...

mercado livre

# API


```
{
    "values": {
        "request-diff": 0.5,
        "attention-avg": 68,
        "error-max": 33,
        "request-avg": 86.66666666666667,
        "attention-diff": 0.5,
        "error-diff": 0.5,
        "error-sum": 560,
        "request-sum": 2600,
        "response-time-avg": 8.005390460354615,
        "response-time-diff": 0.4987011786714104,
        "attention-sum": 2040,
        "response-time-max": 20.572222646325827,
        "request-max": 157,
        "attention-max": 126,
        "error-avg": 18.666666666666668,
        "response-time-sum": 240.16171381063847
    },
    "name": "sorter"
},
```

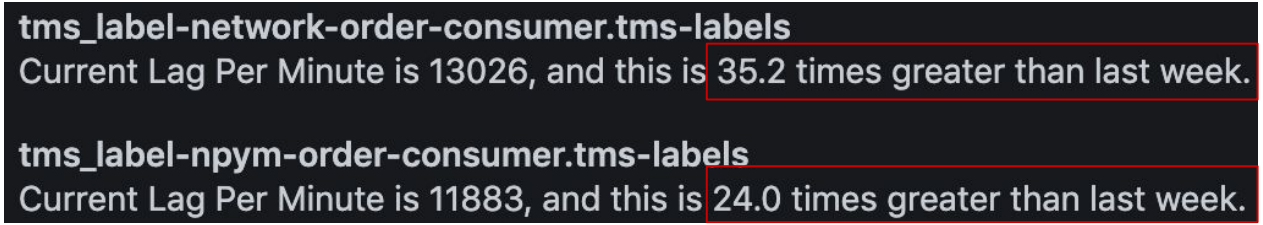

- Para cara endpoint, KVS, DS, Lock e etc;
- Requisicões, Erros, 4XX responses, tempo de resposta, Lag atual e etc;
- Média, Máximo, Diferença e Total;

mercado livre

# Alertas Mais Inteligentes

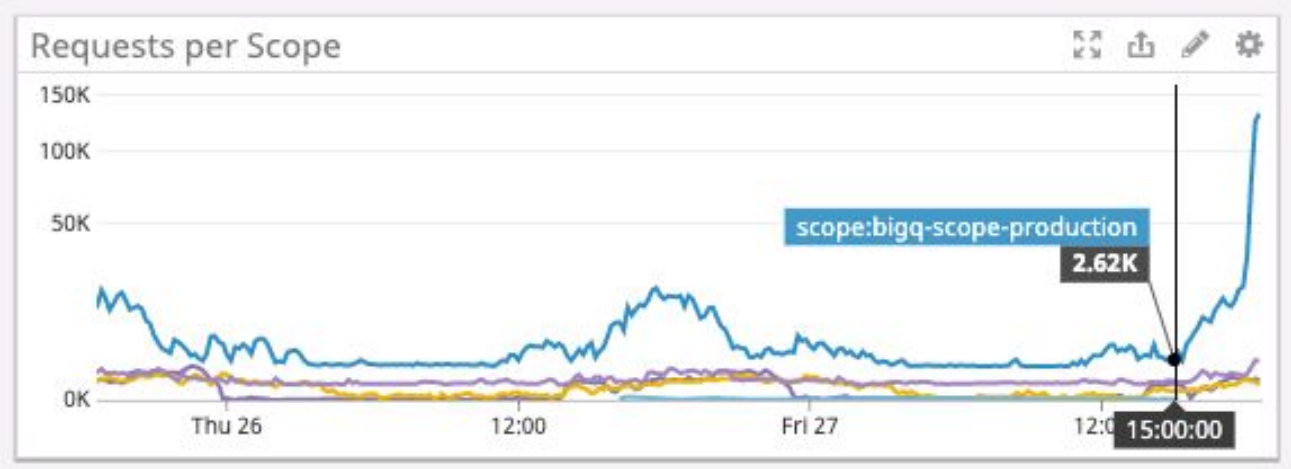

mercado livre

# Alertas Mais Inteligentes

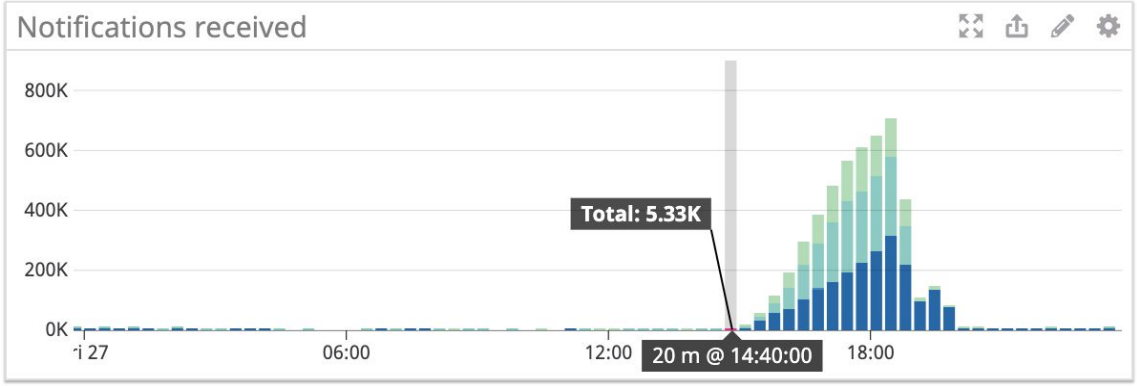


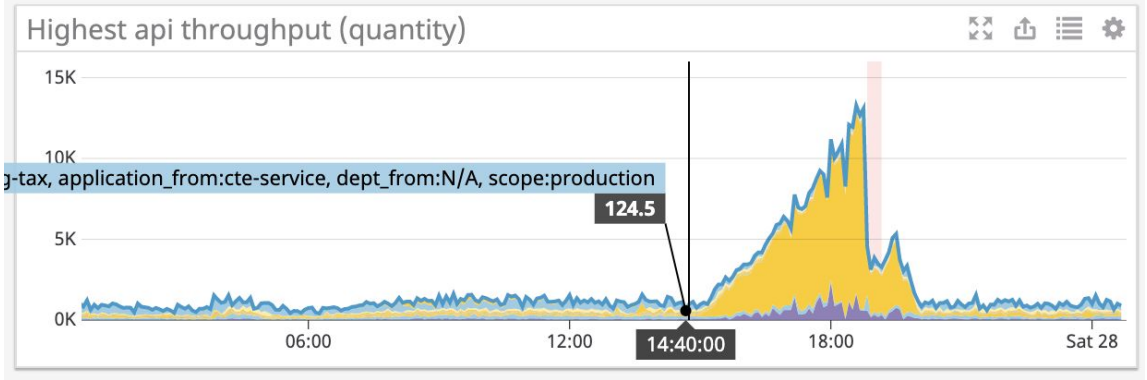

mercado livre

# Alertas Mais Inteligentes



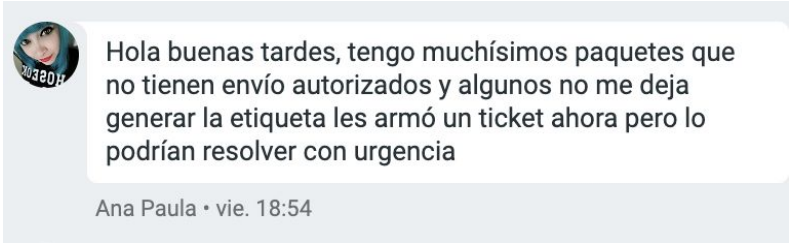
# Alertas Mais Inteligentes

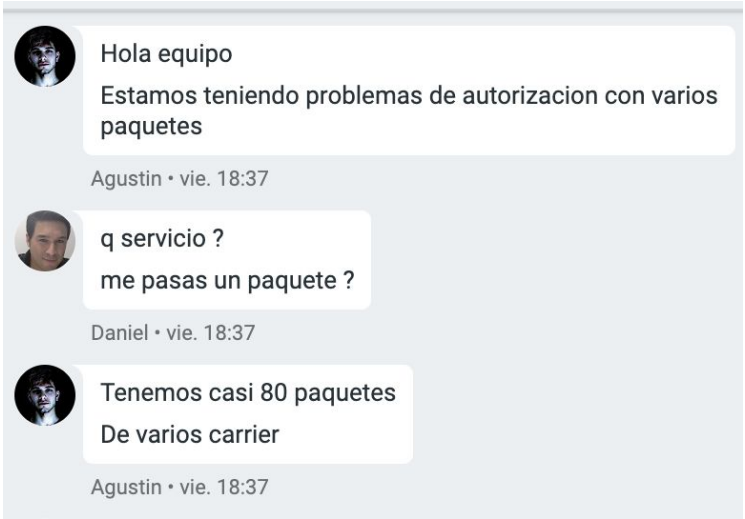



mercado livre

# Alertas Mais Inteligentes




mercado livre

# Referências


- Monitoring Modern Infrastructure:  Measure what is measurable, and make measurable what is not so - Jason Matson and K Young.

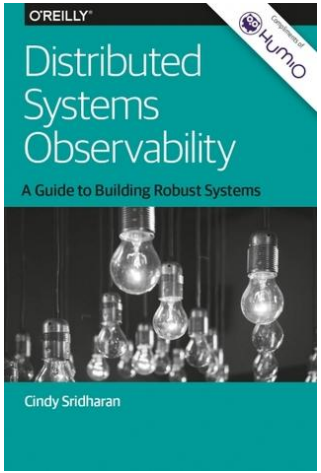
  https://www.datadoghq.com/ebook/monitoring-modern-infrastructure/

- Distributed Systems Observability - Cindy Sridharan

  https://www.oreilly.com/library/view/distributed-systems-observability/9781492033431/

- The power of tagged metrics - Evan Mouzakitis

  https://www.datadoghq.com/blog/the-power-of-tagged-metrics/


mercado livre

# Referências


- Metrics Types

  https://docs.datadoghq.com/developers/metrics/types/

- Metrics, tracing, and logging - Peter Bourgon

  https://peter.bourgon.org/blog/2017/02/21/metrics-tracing-and-logging.html

- Datadog Data Collection, Resolution, and Retention

  https://docs.datadoghq.com/developers/faq/data-collection-resolution-retention/

- Custom Metrics Billing

  https://docs.datadoghq.com/account_management/billing/custom_metrics/


mercado livre

# Obrigado!

**Johnathan Fercher da Rosa - TMS**
johnathan.fercher@mercadolivre.com

**Marcos Pereira Júnior - Shipping Tax**
marcos.pereira@mercadolivre.com

2020


mercado livre