



# Introducción a Prometheus y PromQL: La vida secreta de las labels

Carlos Adiego Cortés  
Integrations Engineer

# Introducción a Prometheus y PromQL: La vida secreta de las labels



Carlos Adiego Cortés

Integrations Engineer en Sysdig y mantenedor de PromCat.io.

Le gustan los videojuegos y leer mangas.

Tiene dos gatos, pero quiere más.

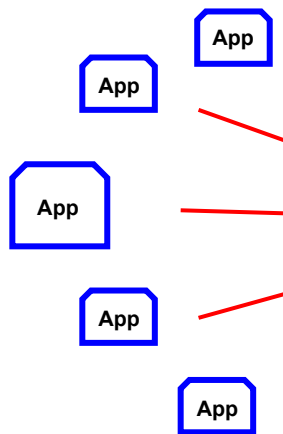


Midna

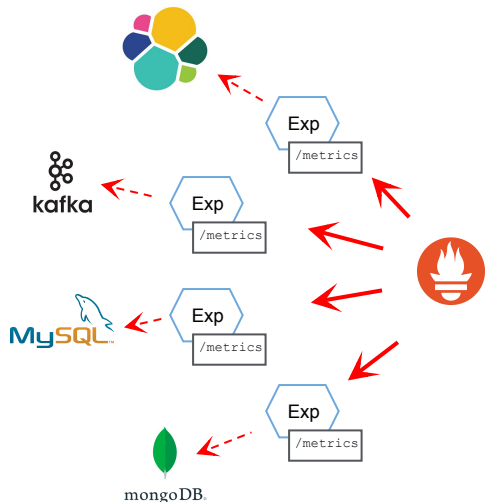


Ender

# Cuando todo esto era campo...



# Eso está muy bien, ¿pero y las que no?



## Desventajas:

- Multitud de exporters para la misma aplicación
- Instalación heterogénea
- Aplicación de terceros
- Una app más a mantener
- ¿Quién los mantiene?

## Vínculos de interés:

- <https://www.youtube.com/watch?v=UZ-MxQpaogY>

# Promcat.io

## P R O M C A T

A resource catalog for enterprise-class Prometheus monitoring

A PROJECT BY  
 sysdig

FILTER

### SELECT YOUR CATEGORY

- ☐ Available
- ☐ AWS
- ☐ Containers
- ☐ Database
- ☐ Host
- ☐ Hpa
- ☒ Kubernetes
- ☐ Load-balancer
- ☒ Logging
- ☐ Message-broker
- ☐ Network
- ☐ Observability
- ☐ OpenShift
- ☐ PHP
- ☐ Platform



#### CONSUL

Consul is a free and open-source service networking platform developed by HashiCorp.



#### FLUENTD

Fluentd is an open source data collector for unified logging layer.



#### ISTIO

Istio service mesh. Connect, secure, control, and observe services.



#### KEDA

KEDA is a Kubernetes-based Event Driven Autoscaler.



#### NGINX Ingress Controller

##### NGINX-INGRESS

The open source web server that powers 400 million websites.



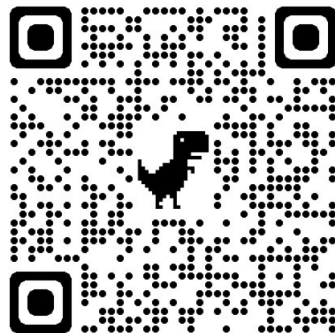
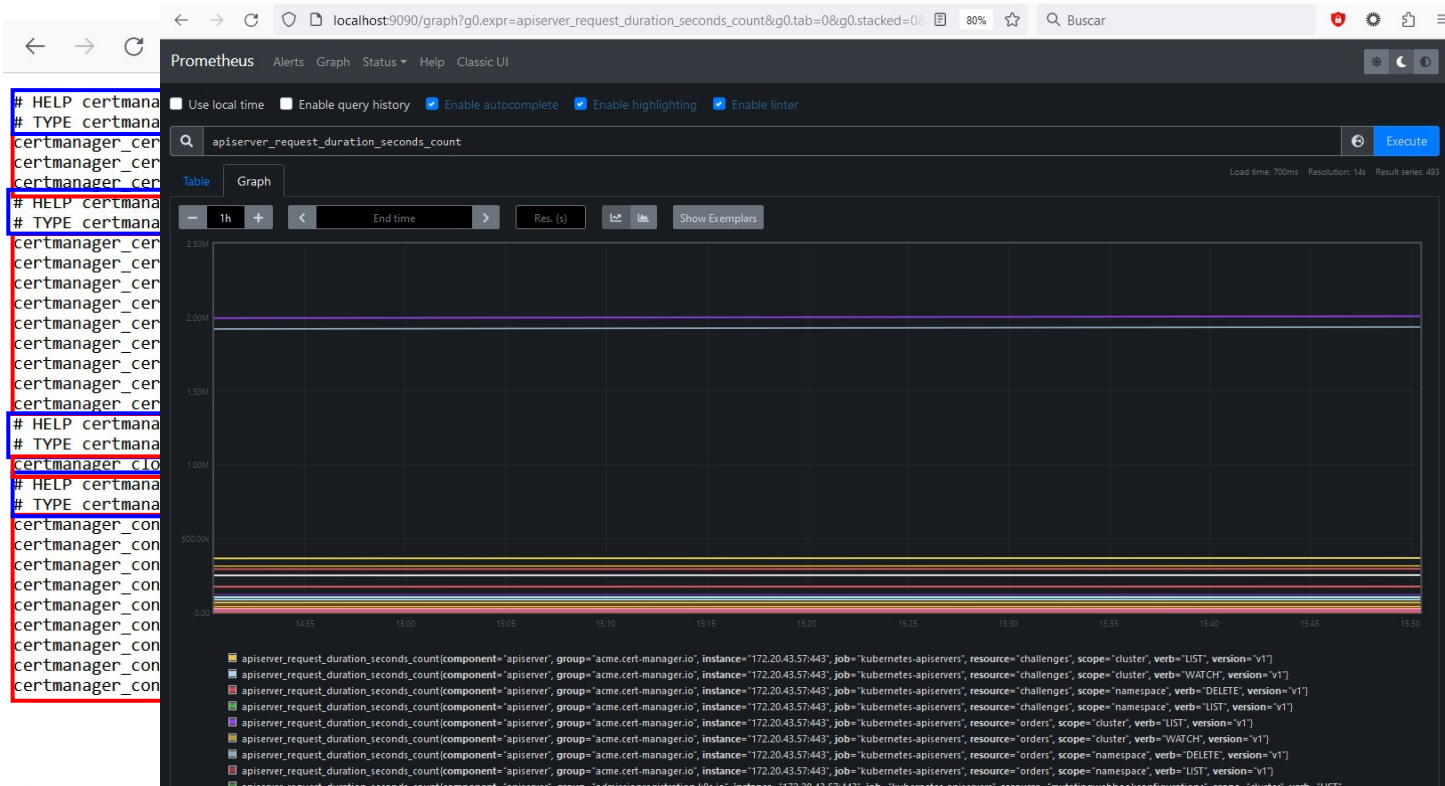
#### kubernetes

##### KUBERNETES-CONTROL

Open-source system for automating deployment, scaling, and management of containerized applications.

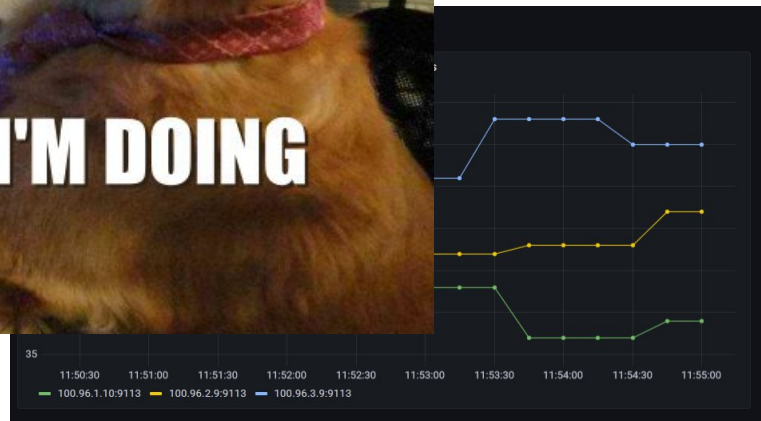
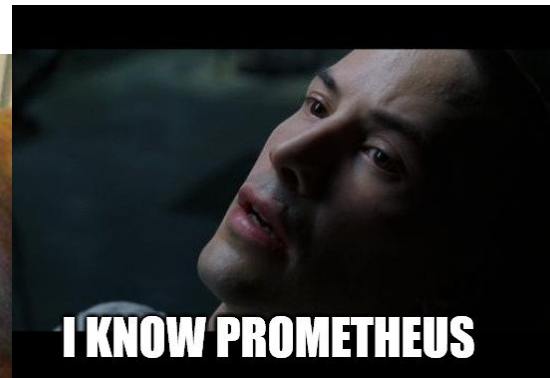
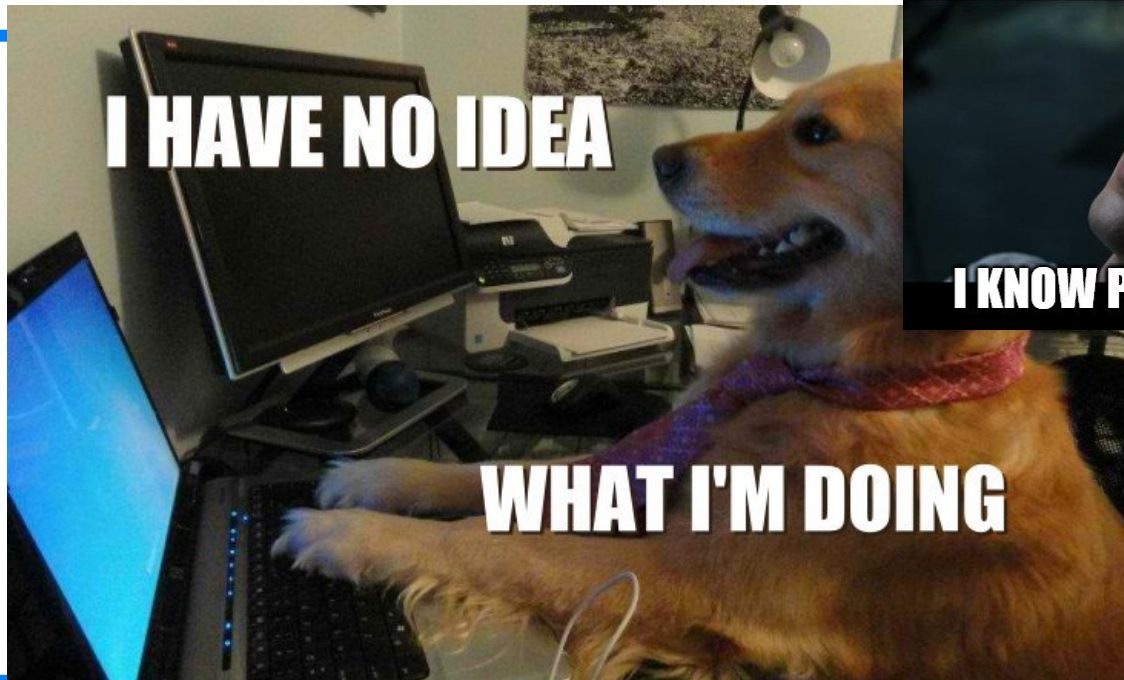


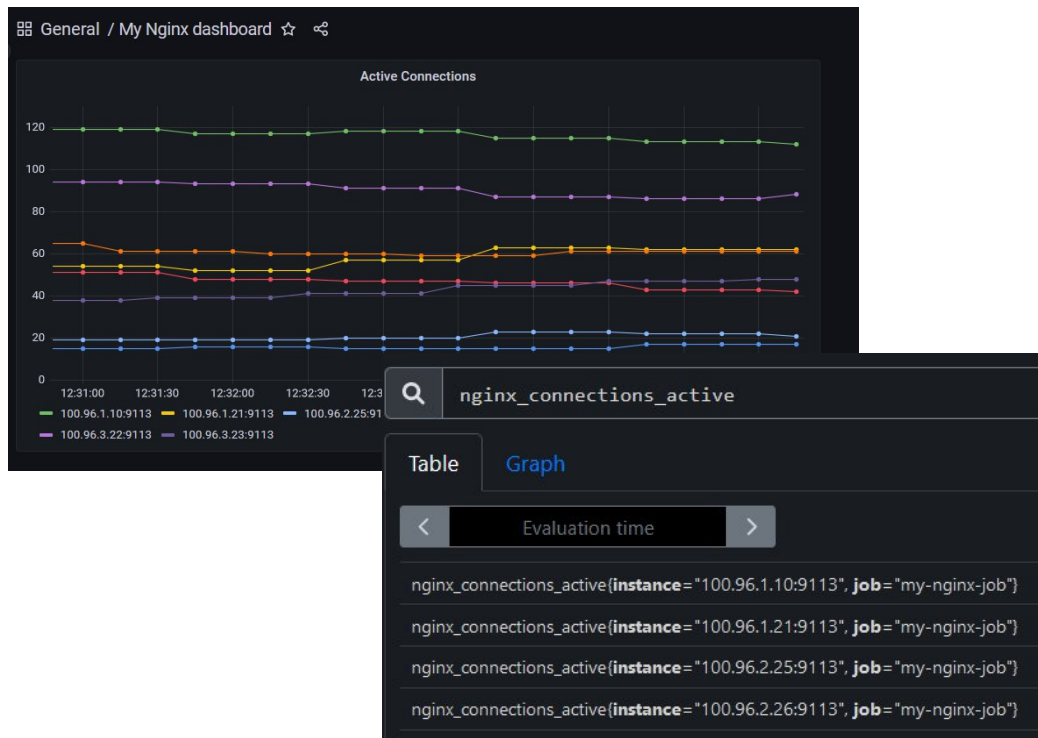
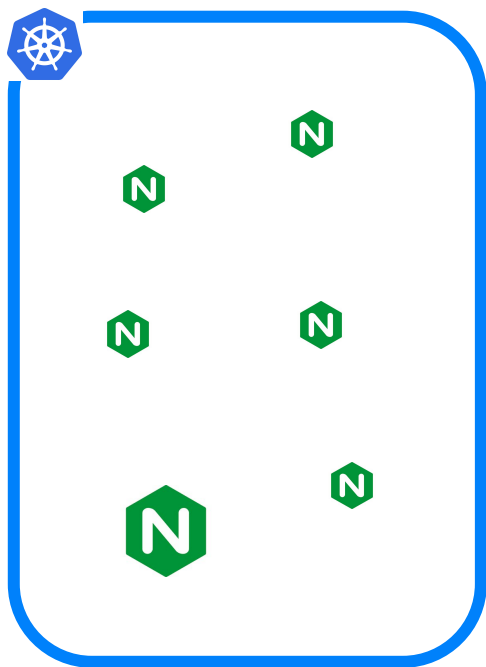
# Métricas de Prometheus y PromQL





# Tu primera experiencia





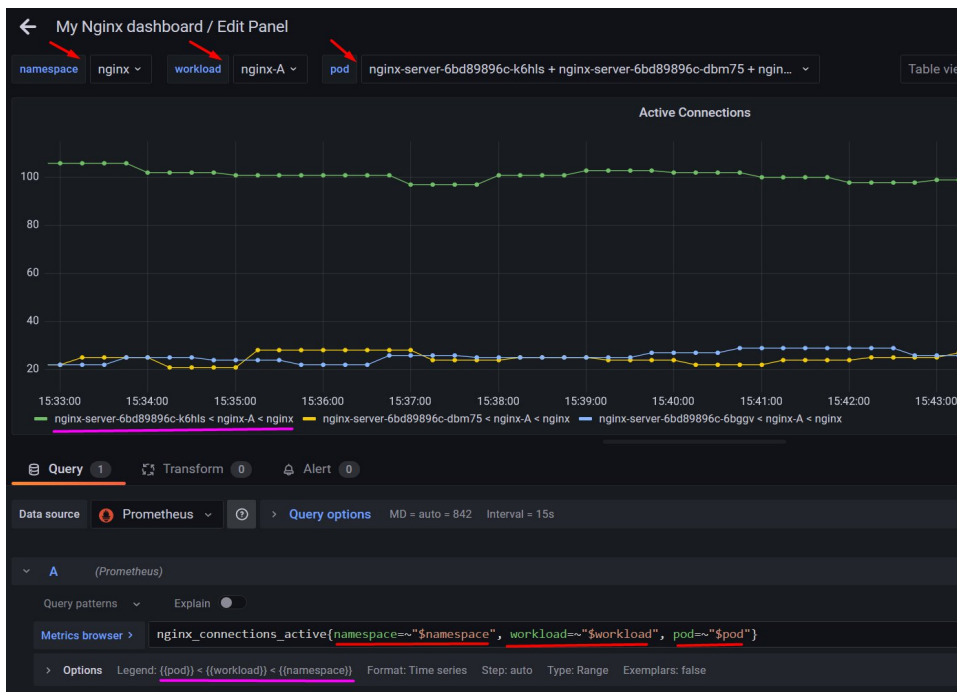
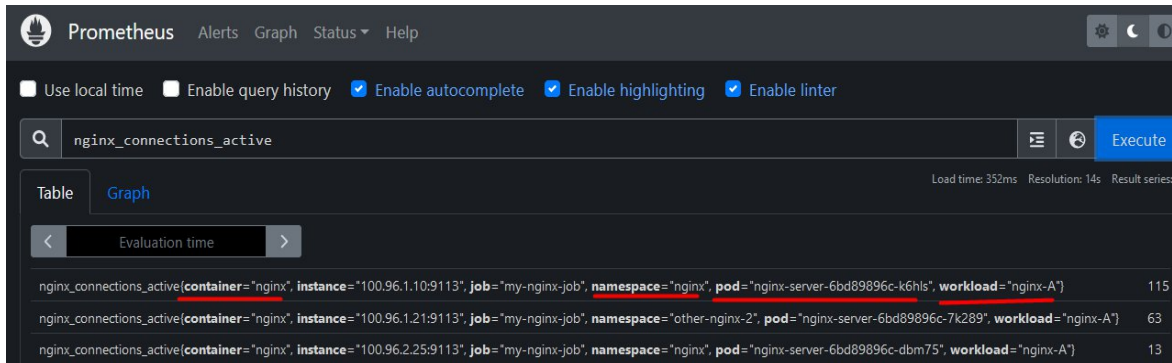


# Reetiquetando con el Prometheus Service Discovery

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-server
spec:
  selector:
    matchLabels:
      app: nginx-A
  replicas: 3
  template:
    metadata:
      labels:
        app: nginx-A
```

\_\_meta\_kubernetes\_pod\_label\_<labelname>  
\_\_meta\_kubernetes\_namespace  
\_\_meta\_kubernetes\_pod\_name  
\_\_meta\_kubernetes\_pod\_container\_name

```
- job_name: my-nginx-job
  kubernetes_sd_configs:
    - role: pod
  relabel_configs:
    - action: keep
      regex: nginx*
      source_labels:
        - __meta_kubernetes_pod_container_name
    - action: replace
      source_labels:
        - __address__
      regex: ([^:]+)(?::\d+)?
      replacement: $1:9113
      target_label: address
    - action: replace
      source_labels: [__meta_kubernetes_pod_label_app]
      target_label: workload
    - action: replace
      source_labels: [__meta_kubernetes_namespace]
      target_label: namespace
    - action: replace
      source_labels: [__meta_kubernetes_pod_name]
      target_label: pod
    - action: replace
      source_labels: [__meta_kubernetes_pod_container_name]
      target_label: container
  tls_config:
    insecure_skip_verify: true
```



# Reetiquetando con el Prometheus Service Discovery

\_\_meta\_kubernetes\_namespace  
\_\_meta\_kubernetes\_pod\_name \_\_meta\_kubernetes\_pod\_ip  
\_\_meta\_kubernetes\_pod\_label\_<labelname>  
\_\_meta\_kubernetes\_pod\_labelpresent\_<labelname>  
\_\_meta\_kubernetes\_pod\_annotation\_<annotationname>  
\_\_meta\_kubernetes\_pod\_annotationpresent\_<annotationname>  
\_\_meta\_kubernetes\_pod\_container\_init  
\_\_meta\_kubernetes\_pod\_container\_name  
\_\_meta\_kubernetes\_pod\_container\_image  
\_\_meta\_kubernetes\_pod\_container\_port\_name  
\_\_meta\_kubernetes\_pod\_container\_port\_number  
\_\_meta\_kubernetes\_pod\_container\_port\_protocol  
\_\_meta\_kubernetes\_pod\_ready \_\_meta\_kubernetes\_pod\_phase  
\_\_meta\_kubernetes\_pod\_node\_name  
\_\_meta\_kubernetes\_pod\_host\_ip \_\_meta\_kubernetes\_pod\_uid  
\_\_meta\_kubernetes\_pod\_controller\_kind:  
\_\_meta\_kubernetes\_pod\_controller\_name

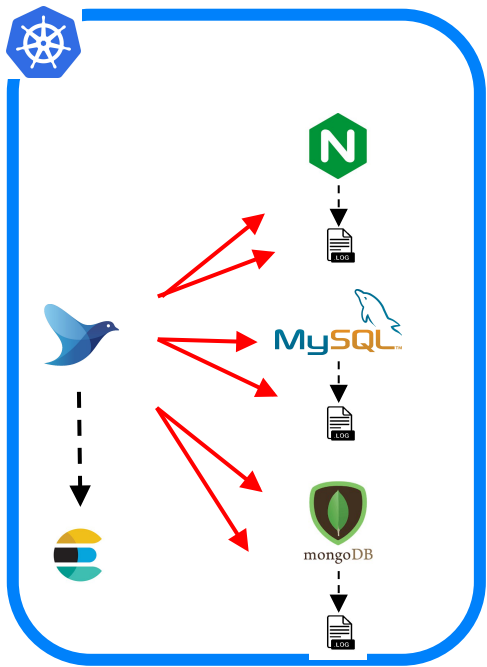
```
- action: replace
  source_labels:
  - __address__
  regex: ([^:]+)(?::\d+)?
  replacement: $1:9113
  target_label: __address__
```

```
- action: replace
  source_labels: [__meta_kubernetes_pod_node_name ]
  target_label: node
```

Vínculos de interés:

- [https://prometheus.io/docs/prometheus/latest/configuration/configuration/#kubernetes\\_sd\\_config](https://prometheus.io/docs/prometheus/latest/configuration/configuration/#kubernetes_sd_config)
- <https://grafana.com/blog/2022/03/21/how-relabeling-in-prometheus-works/>

# Reetiquetando Fluents

[illegible]

# Reetiquetando Fluentd

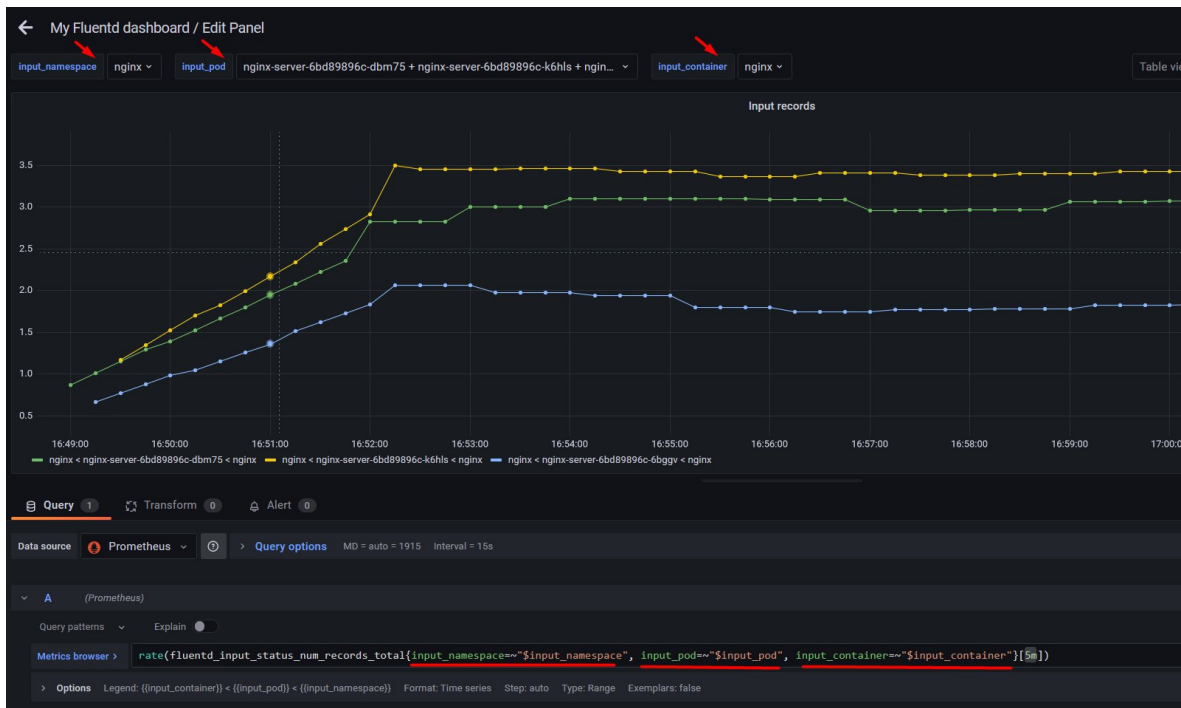
```
namespace="logging", pod="fluentd-pnk8l", tag="kubernetes.var.log.containers.nginx-server-6bd89896c-6bggv_nginx_nginx-ad800e770273b9ede625285118fd6a6530d2608911386857771325e28bfc2236.log")
namespace="logging", pod="fluentd-pnk8l", tag="kubernetes.var.log.containers.nginx-server-6bd89896c-6bggv_nginx_nginx-exporter-19e787d7455652a8d46d5b5f1f5af011382e8b7bd711ce92d2246ff81e9f1397.log")
namespace="logging", pod="fluentd-pnk8l", tag="kubernetes.var.log.containers.prometheus-node-exporter-cbz5k_monitoring_prometheus-node-exporter-89f2815b1d8ff600bcfafa540812b650e01e35720e94e8389a8833a2845fd698.log")
```

```
- action: replace
  source_labels: [__meta_kubernetes_pod_container_name]
  target_label: container
  tls_config:
    insecure_skip_verify: true
  metric_relabel_configs:
  - action: replace
    source_labels:
    - __name__
    - tag
    regex: fluentd_input_status_num_records_total;kubernetes.var.log.containers.([a-zA-Z0-9 \d\.-]+)_([a-zA-Z0-9 \d\.-]+)_([a-zA-Z0-9 \d\.-]+)-[a-zA-Z0-9]+.log
    target_label: input_pod
    replacement: $1
  - action: replace
    source_labels:
    - __name__
    - tag
    regex: fluentd_input_status_num_records_total;kubernetes.var.log.containers.([a-zA-Z0-9 \d\.-]+)_([a-zA-Z0-9 \d\.-]+)_([a-zA-Z0-9 \d\.-]+)-[a-zA-Z0-9]+.log
    target_label: input_namespace
    replacement: $2
  - action: replace
    source_labels:
    - __name__
    - tag
    regex: fluentd_input_status_num_records_total;kubernetes.var.log.containers.([a-zA-Z0-9 \d\.-]+)_([a-zA-Z0-9 \d\.-]+)_([a-zA-Z0-9 \d\.-]+)-[a-zA-Z0-9]+.log
    target_label: input_container
    replacement: $3
```

fluentd\_input\_status\_num\_records\_total(container="fluentd", hostname="fluentd-ggk4q", input\_container="nginx", input\_namespace="nginx", input\_pod="nginx-server-6bd89896c-dbm75", instance="100.96.2.28:24231", job="my-2a651c5fc6480d9f68f23223c4dcd01f869facaa753eabd815d5aa4e23a8fd39.log")

fluentd\_input\_status\_num\_records\_total(container="fluentd", hostname="fluentd-ggk4q", input\_container="nginx-exporter", input\_namespace="nginx", input\_pod="nginx-server-6bd89896c-dbm75", instance="100.96.2.28:24231", job="nginx-exporter-a43b310239339e2ab6e01cf22c61f6109763d8d948d89257e97d6ce6f5c92be0.log")

fluentd\_input\_status\_num\_records\_total(container="fluentd", hostname="fluentd-ggk4q", input\_container="prometheus-alertmanager", input\_namespace="monitoring", input\_pod="prometheus-alertmanager-6559854bfd-vph29", instance="100.96.2.28:24231", job="prometheus-alertmanager-f1910fe5c161d6a38964901b0c8cb3e1dd349b38c9881040a7de55456927078f.log")





# Reetiquetando Azure exporter

```
my_own_metric_name{aggregation="average",instance="localhost:8080",interval="PT15M",job="azure-metrics-postgres",metric="cpu_percent",  
resourceID="/subscriptions/bfc31cc5-d3bd-4b36-a40e-d13688d546ec/resourceGroups/david-detorres/providers/Microsoft.DBforPostgreSQL/ser  
vers/metrics-integration-single",timespan="PT15M",unit="Percent"}
```

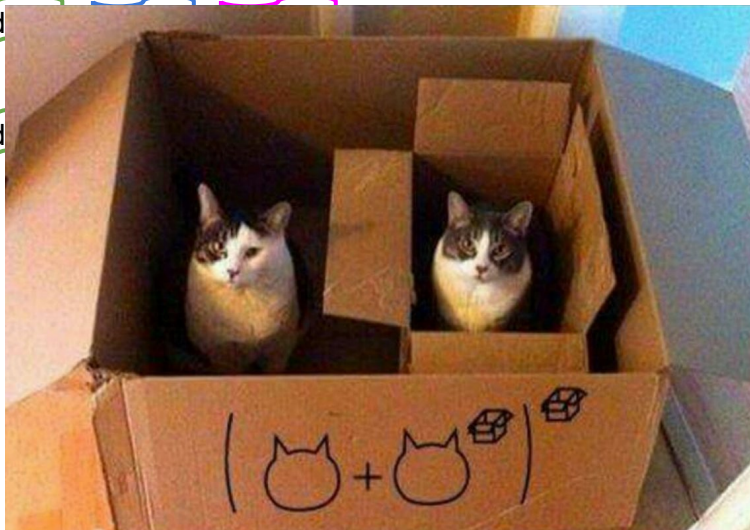
```
- source_labels: ['metric','aggregation']  
  target_label: '__name__' ←  
  regex: '(.^[^_]*);(.^[^_]*)'  
  replacement: azure_${1}_${2}  
- regex: metric  
  action: labeldrop  
- regex: aggregation  
  action: labeldrop
```

```
- target_label: 'subscription'  
  source_labels: ['__name__', 'resourceID']  
  regex: "(.+)/subscriptions/(.+)/resourceGroups/(.+)/providers/(.+)/servers/(.+)";  
  replacement: ${2}  
- target_label: 'resourceGroup'  
  source_labels: ['__name__', 'resourceID']  
  regex: "(.+)/subscriptions/(.+)/resourceGroups/(.+)/providers/(.+)/servers/(.+)";  
  replacement: ${3}  
- target_label: 'provider'  
  source_labels: ['__name__', 'resourceID']  
  regex: "(.+)/subscriptions/(.+)/resourceGroups/(.+)/providers/(.+)/servers/(.+)";  
  replacement: ${4}  
- target_label: 'server'  
  source_labels: ['__name__', 'resourceID']  
  regex: "(.+)/subscriptions/(.+)/resourceGroups/(.+)/providers/(.+)/servers/(.+)";  
  replacement: ${5}  
- regex: resourceID  
  action: labeldrop
```

```
azure_cpu_percent_average{instance="localhost:8080",interval="PT15M",job="azure-metrics-postgres",provider="Microsoft.DBforPostgreSQL",  
"resourceGroup="david-detorres",server="metrics-integration-single",subscription="bfc31cc5-d3bd-4b36-a40e-d13688d546ec",timespan="PT  
15M",unit="Percent"}
```

# Operaciones con métricas

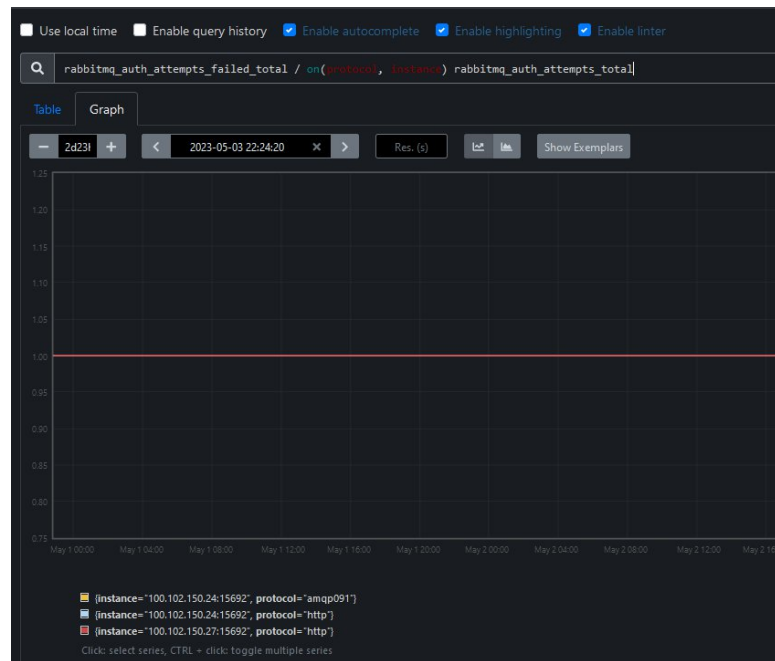
esta\_metrica{ país } ciudad  
+  
otra\_metrica{ país } ciudad



# Operaciones con métricas

esta\_metrica{ país ciudad calle portal }  
+  
otra\_metrica{ país ciudad calle portal piso }

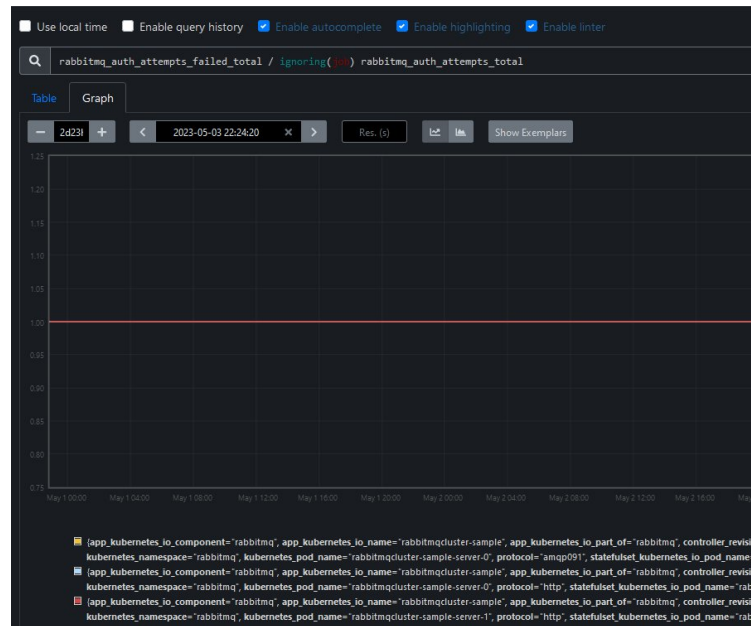
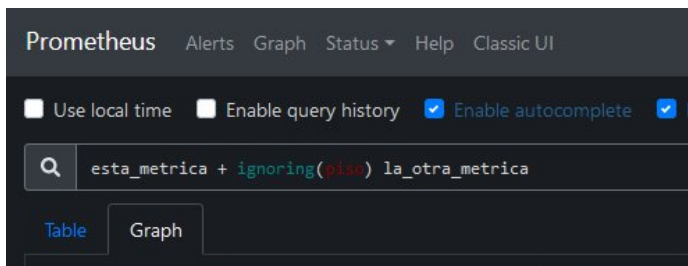
Especificando etiquetas a usar con 'on':



# Operaciones con métricas

esta\_metrica{ país ciudad calle portal }  
+  
otra\_metrica{ país ciudad calle portal piso }

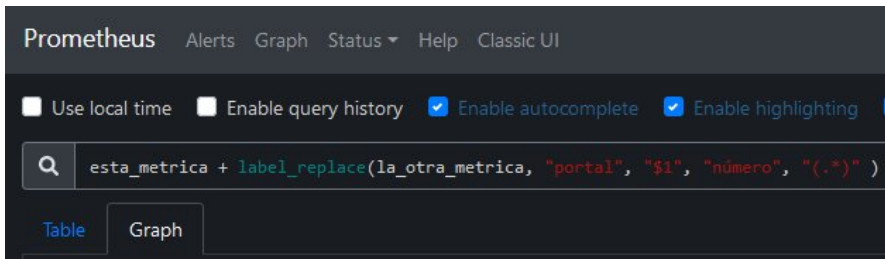
Especificando etiquetas a ignorar con 'ignoring':



# Operaciones con métricas

```
esta_metrica{ país ciudad calle portal }  
+  
otra_metrica{ país ciudad calle número }
```

Renombrando etiquetas con 'label\_replace':



**¡Muchas gracias!**

**¿Preguntas?**





**sysdig**

**Secure Your Cloud  
and Containers**