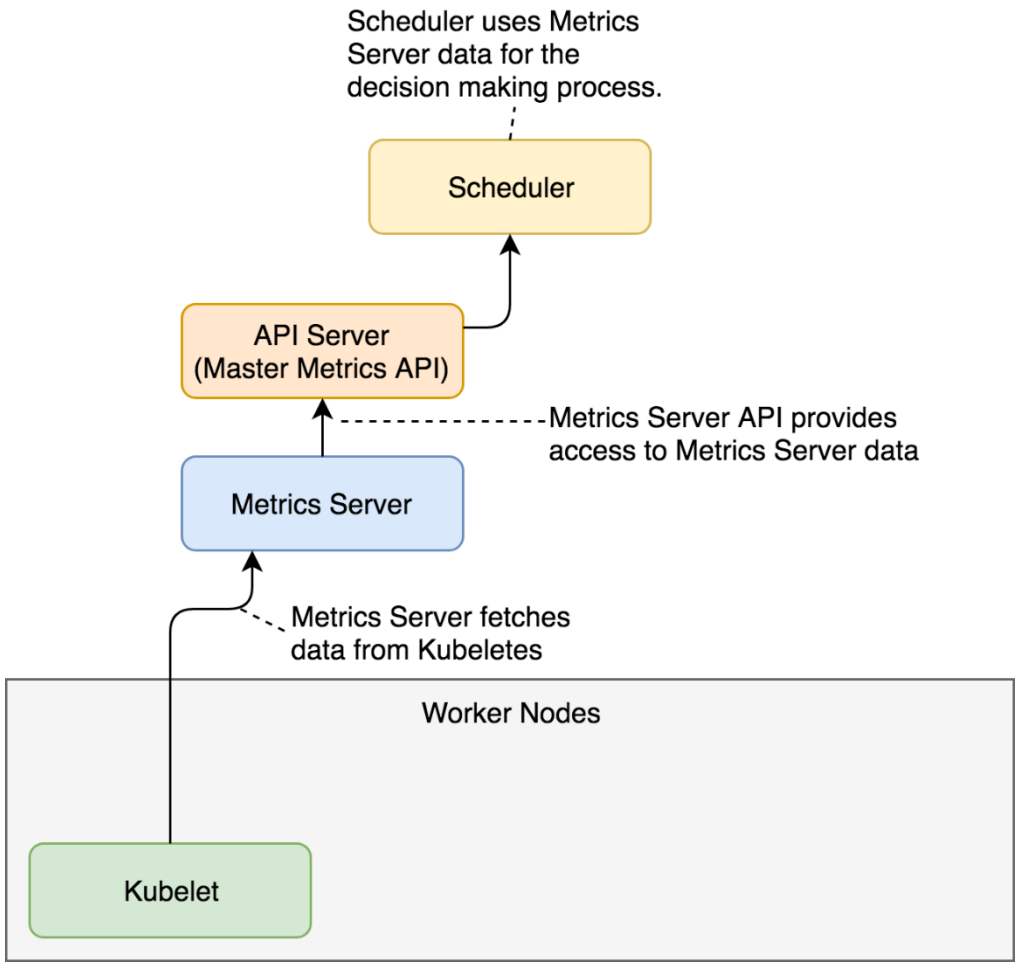
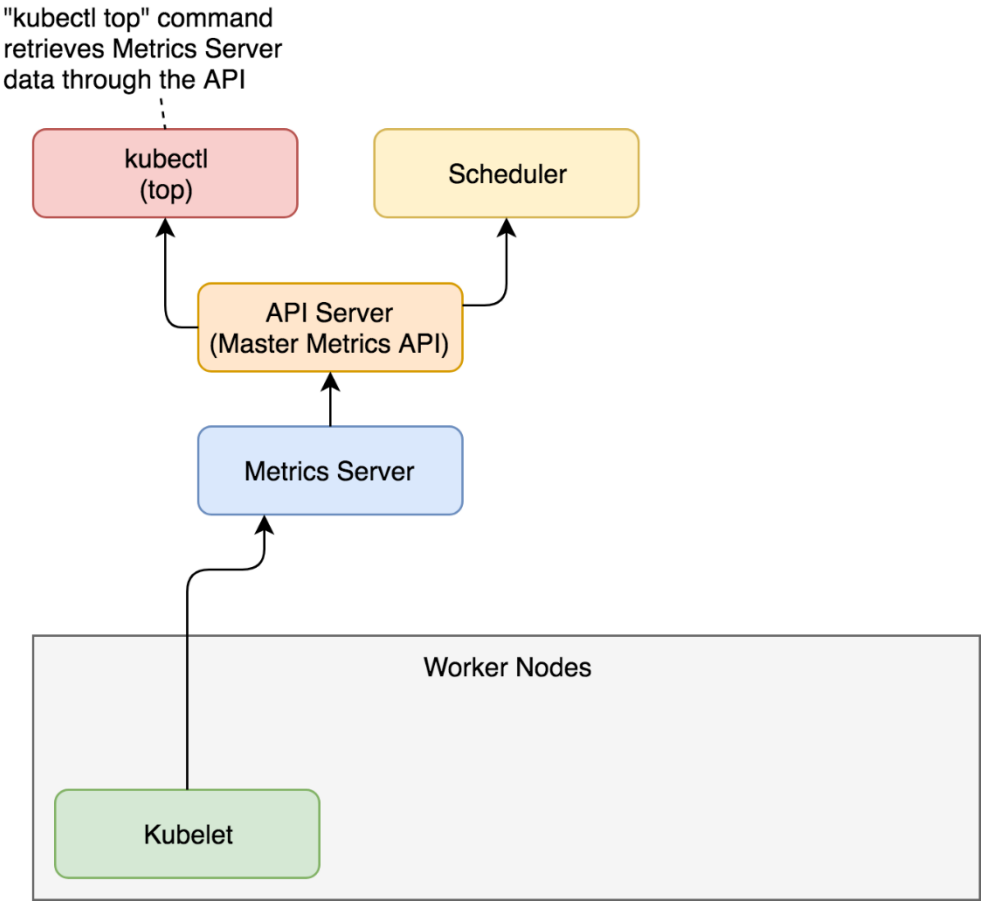
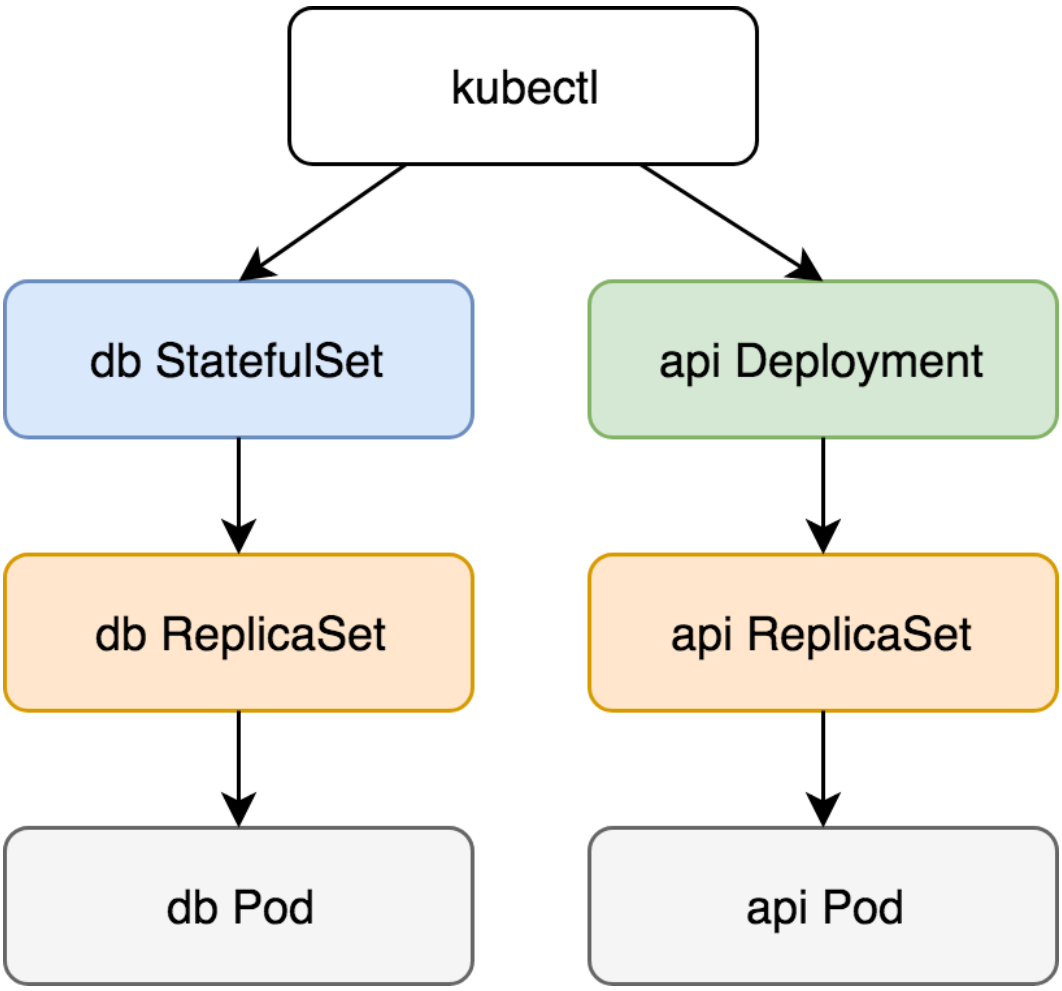
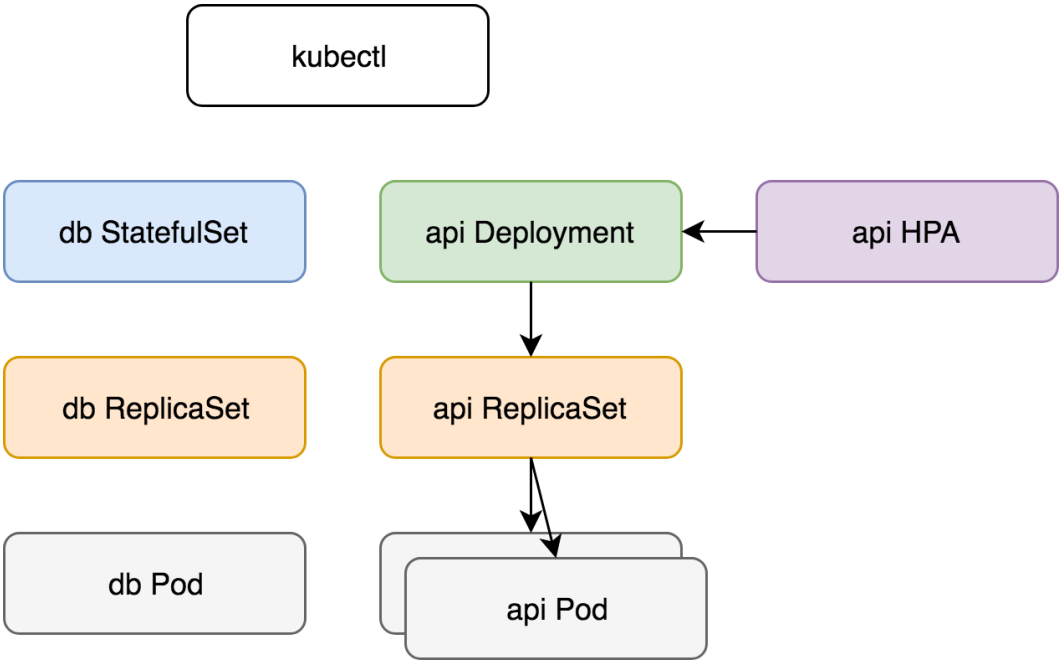
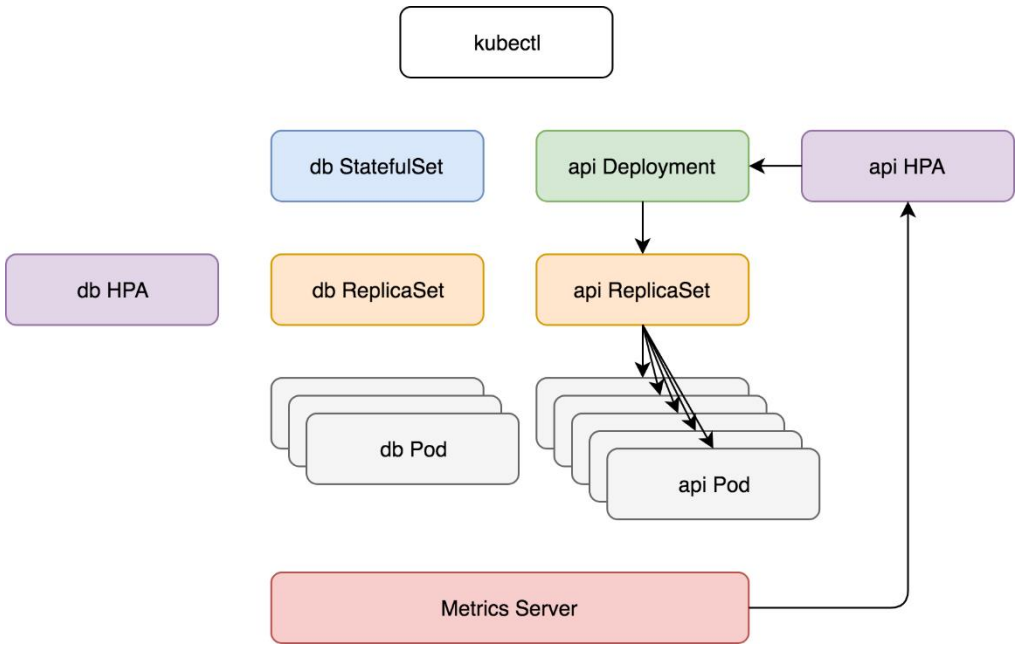
Chapter 1: Autoscaling Deployments and StatefulSets Based on Resource Usage



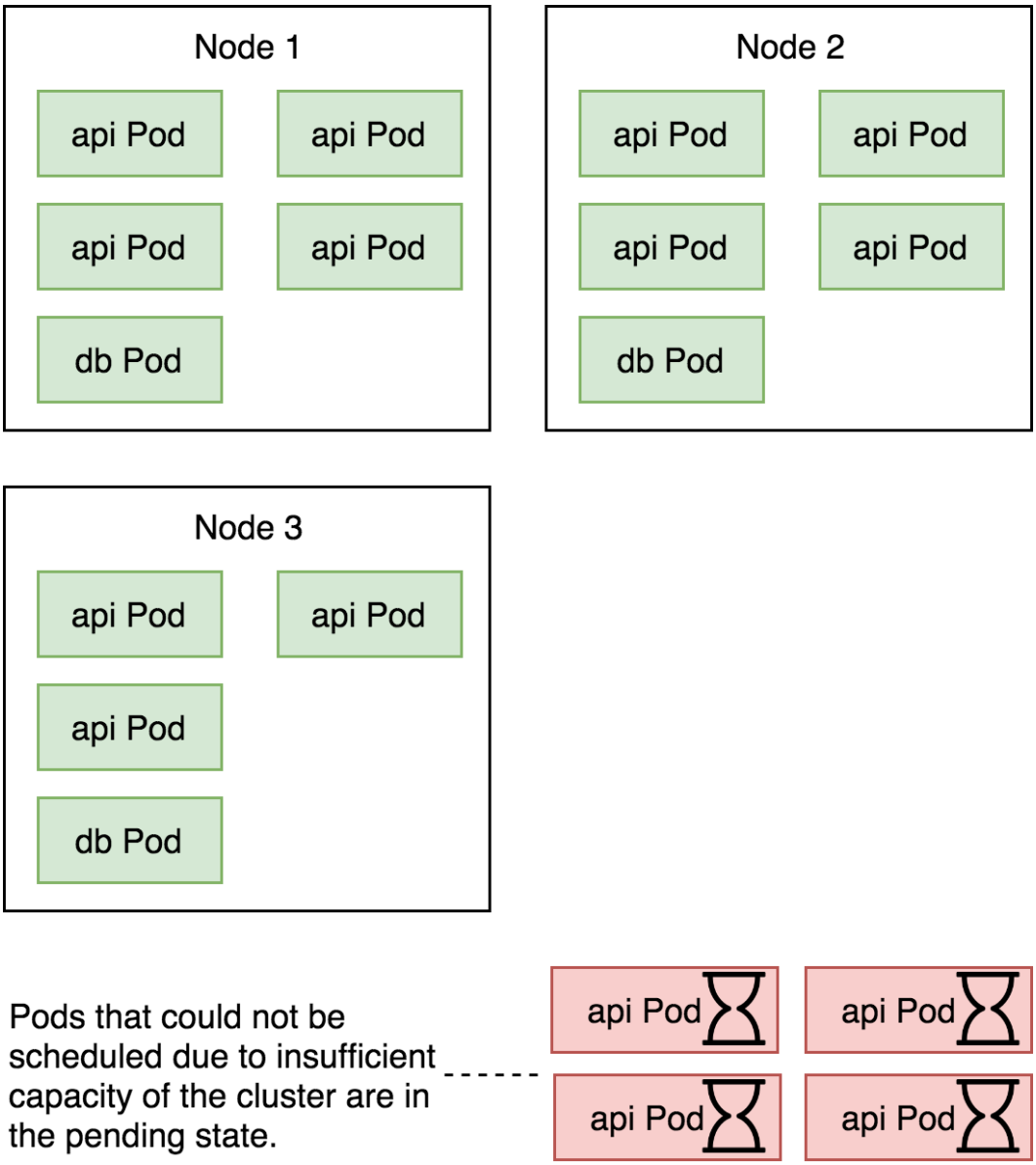

"kubectl top" command
retrieves Metrics Server
data through the API
kubectl
(top)
Scheduler
API Server
(Master Metrics API)
Metrics Server
Worker Nodes
Kubelet

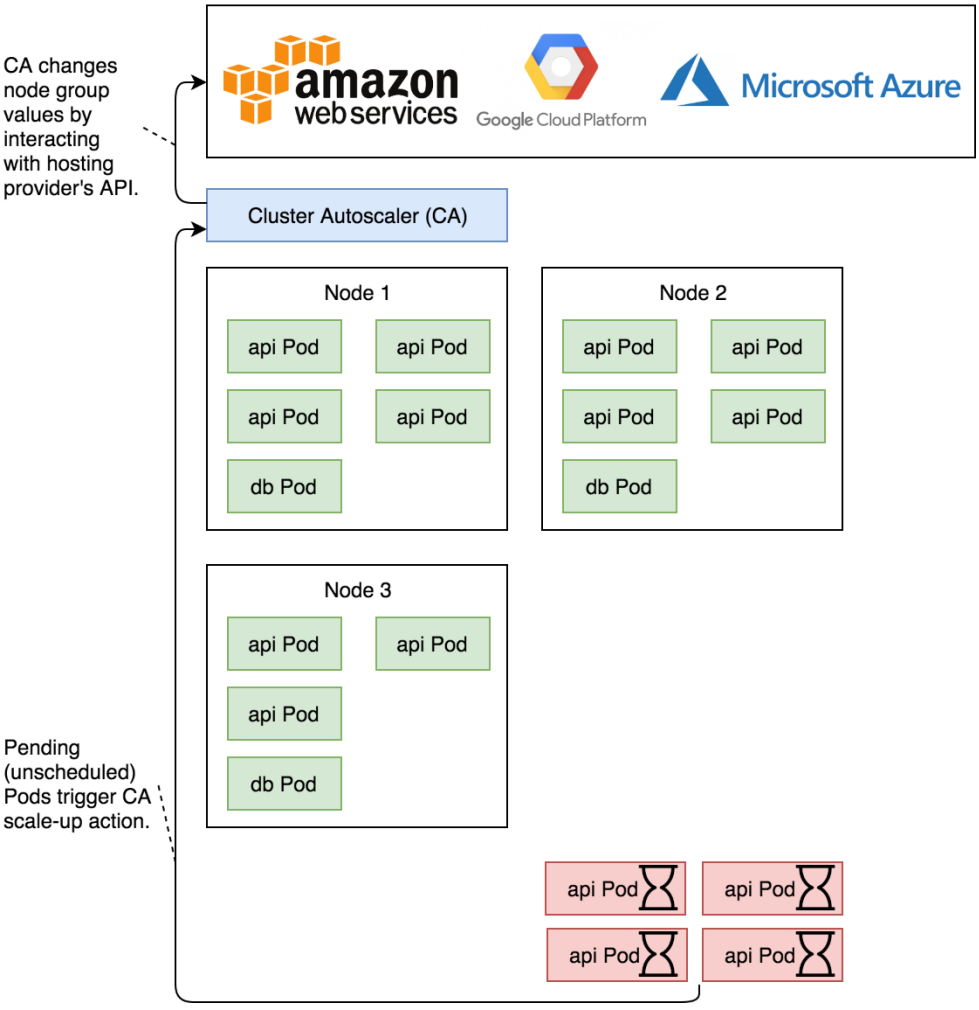

kubectl
db StatefulSet
api Deployment
db ReplicaSet
api ReplicaSet
db Pod
api Pod

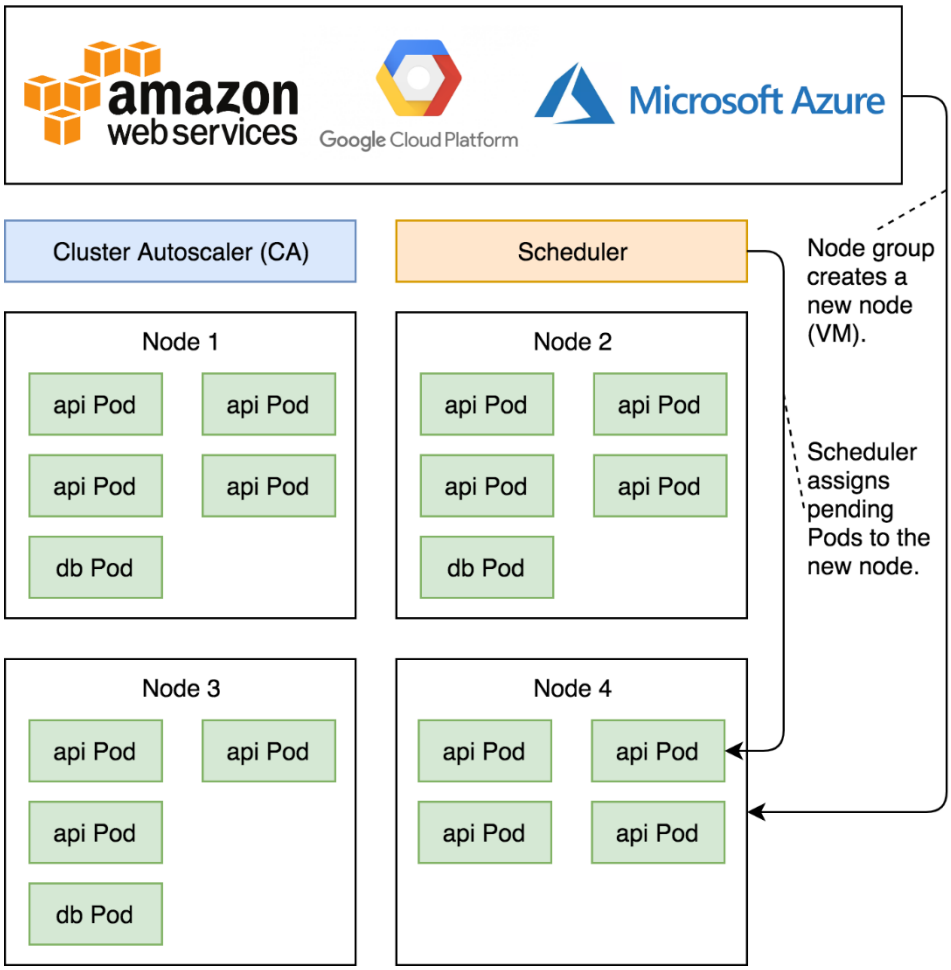

kubectl
db StatefulSet
api Deployment
api HPA
db ReplicaSet
api ReplicaSet
db Pod
api Pod

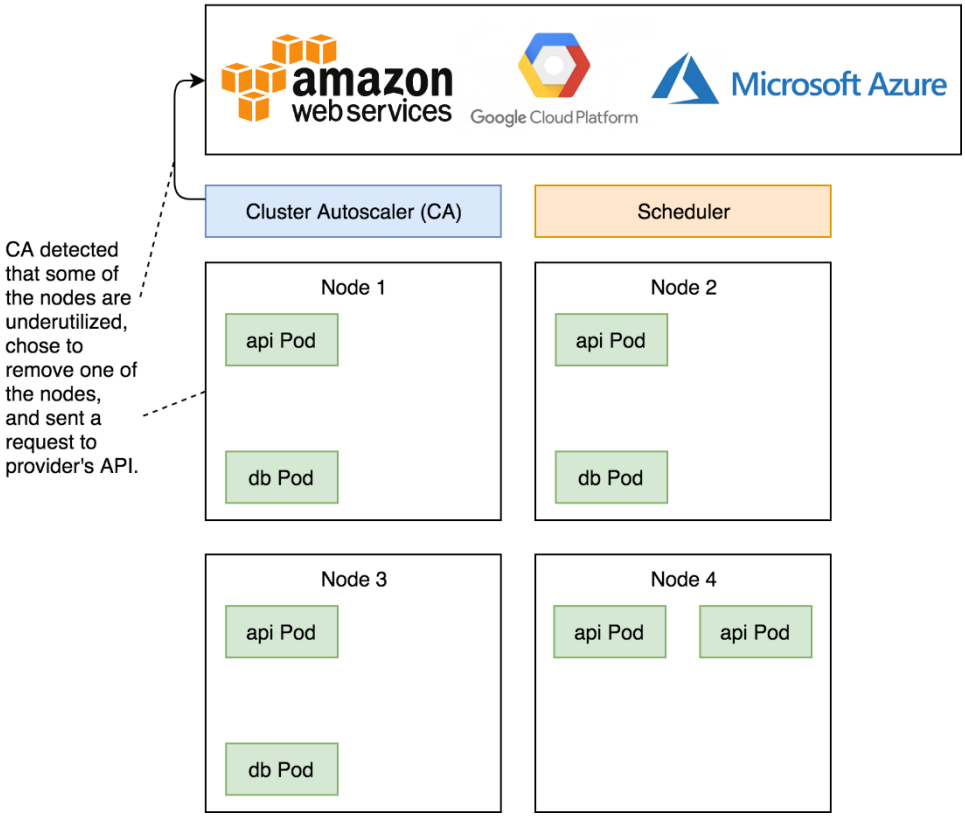

kubectl
db StatefulSet
api Deployment
api HPA
db HPA
db ReplicaSet
api ReplicaSet
db Pod
api Pod
Metrics Server

Chapter 2: Auto-scaling Nodes of a Kubernetes Cluster

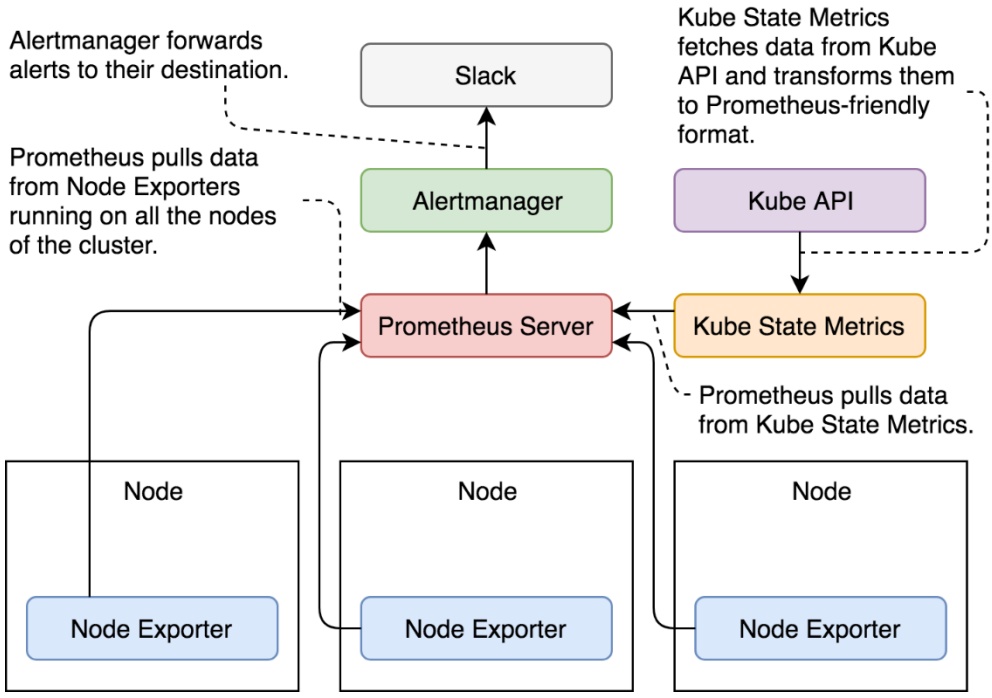



CA changes node group values by interacting with hosting provider's API.
amazon web services
Google Cloud Platform
Microsoft Azure
Cluster Autoscaler (CA)
Node 1
api Pod
api Pod
api Pod
api Pod
db Pod
Node 2
api Pod
api Pod
api Pod
api Pod
db Pod
Node 3
api Pod
api Pod
api Pod
db Pod
Pending (unscheduled) Pods trigger CA scale-up action.
api Pod
api Pod
api Pod
api Pod


amazon web services
Google Cloud Platform
Microsoft Azure
Cluster Autoscaler (CA)
Scheduler
Node group creates a new node (VM).
Scheduler assigns pending Pods to the new node.
Node 1
api Pod
api Pod
api Pod
api Pod
db Pod
Node 2
api Pod
api Pod
api Pod
api Pod
db Pod
Node 3
api Pod
api Pod
api Pod
db Pod
Node 4
api Pod
api Pod
api Pod
api Pod


amazon web services
Google Cloud Platform
Microsoft Azure
Cluster Autoscaler (CA)
Scheduler
CA detected that some of the nodes are underutilized, chose to remove one of the nodes, and sent a request to provider's API.
Node 1
api Pod
db Pod
Node 2
api Pod
db Pod
Node 3
api Pod
db Pod
Node 4
api Pod
api Pod

Chapter 3: Collecting and Querying Metrics and Sending Alerts



Prometheus Alerts Graph Status Help

Targets

All Unhealthy

kubernetes-apiservers (0/1 up) show less

Endpoint	State	Labels	Last Scrape	Error
https://172.31.2.21:443/metrics	DOWN	instance="172.31.2.21:443"	59.345s ago	Get https://172.31.2.21:443/metrics: dial tcp 172.31.2.21:443: i/o timeout

kubernetes-nodes (3/3 up) show less

Endpoint	State	Labels	Last Scrape	Error
https://kubernetes.default.svc:443/api/v1/nodes/aks-nodepool1-29770171-0/proxy/metrics	UP	agentpool="nodepool1" beta_kubernetes_io_arch="amd64" beta_kubernetes_io_instance_type="Standard_B2s" beta_kubernetes_io_os="linux" failure_domain_beta_kubernetes_io_region="eastus" failure_domain_beta_kubernetes_io_zone="0" instance="aks-nodepool1-29770171-0" kubernetes_azure_com_cluster="MC_devops25-group_devops25-cluster_eastus" kubernetes_io_hostname="aks-nodepool1-29770171-0" kubernetes_io_role="agent" storageprofile="managed" storagetier="Premium_LRS"	42.233s ago	
https://kubernetes.default.svc:443/api/v1/nodes/aks-nodepool1-29770171-1/proxy/metrics	UP	agentpool="nodepool1" beta_kubernetes_io_arch="amd64" beta_kubernetes_io_instance_type="Standard_B2s" beta_kubernetes_io_os="linux" failure_domain_beta_kubernetes_io_region="eastus" failure_domain_beta_kubernetes_io_zone="1" instance="aks-nodepool1-29770171-1" kubernetes_azure_com_cluster="MC_devops25-group_devops25-cluster_eastus" kubernetes_io_hostname="aks-nodepool1-29770171-1" kubernetes_io_role="agent" storageprofile="managed" storagetier="Premium_LRS"	16.142s ago	
https://kubernetes.default.svc:443/api/v1/nodes/aks-nodepool1-29770171-2/proxy/metrics	UP	agentpool="nodepool1" beta_kubernetes_io_arch="amd64" beta_kubernetes_io_instance_type="Standard_B2s" beta_kubernetes_io_os="linux"	16.879s ago	

Prometheus Alerts Graph Status Help

Enable query history

kube_node_info

Load time: 151ms
Resolution: 14s
Total time series: 3

Execute - insert metric at cursor -

Graph Console

Element	Value
kube_node_info{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",container_runtime_version="docker://1.13.1",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kernel_version="4.15.0-1023-azure",kubelet_version="v1.11.3",kubeproxy_version="v1.11.3",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",node="aks-nodepool1-29770171-0",os_image="Ubuntu 16.04.5 LTS",provider_id="azure:///subscriptions/7f9f9b08-7d00-43c9-9d30-f10bb79e9a61/resourceGroups/MC_devops25-group_devops25-cluster_eastus/providers/Microsoft.Compute/virtualMachines/aks-nodepool1-29770171-0",release="prometheus"}	1
kube_node_info{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",container_runtime_version="docker://1.13.1",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kernel_version="4.15.0-1023-azure",kubelet_version="v1.11.3",kubeproxy_version="v1.11.3",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",node="aks-nodepool1-29770171-1",os_image="Ubuntu 16.04.5 LTS",provider_id="azure:///subscriptions/7f9f9b08-7d00-43c9-9d30-f10bb79e9a61/resourceGroups/MC_devops25-group_devops25-cluster_eastus/providers/Microsoft.Compute/virtualMachines/aks-nodepool1-29770171-1",release="prometheus"}	1
kube_node_info{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",container_runtime_version="docker://1.13.1",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kernel_version="4.15.0-1023-azure",kubelet_version="v1.11.3",kubeproxy_version="v1.11.3",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",node="aks-nodepool1-29770171-2",os_image="Ubuntu 16.04.5 LTS",provider_id="azure:///subscriptions/7f9f9b08-7d00-43c9-9d30-f10bb79e9a61/resourceGroups/MC_devops25-group_devops25-cluster_eastus/providers/Microsoft.Compute/virtualMachines/aks-nodepool1-29770171-2",release="prometheus"}	1

Remove Graph

Add Graph

Prometheus Alerts Graph Status Help

Alerts

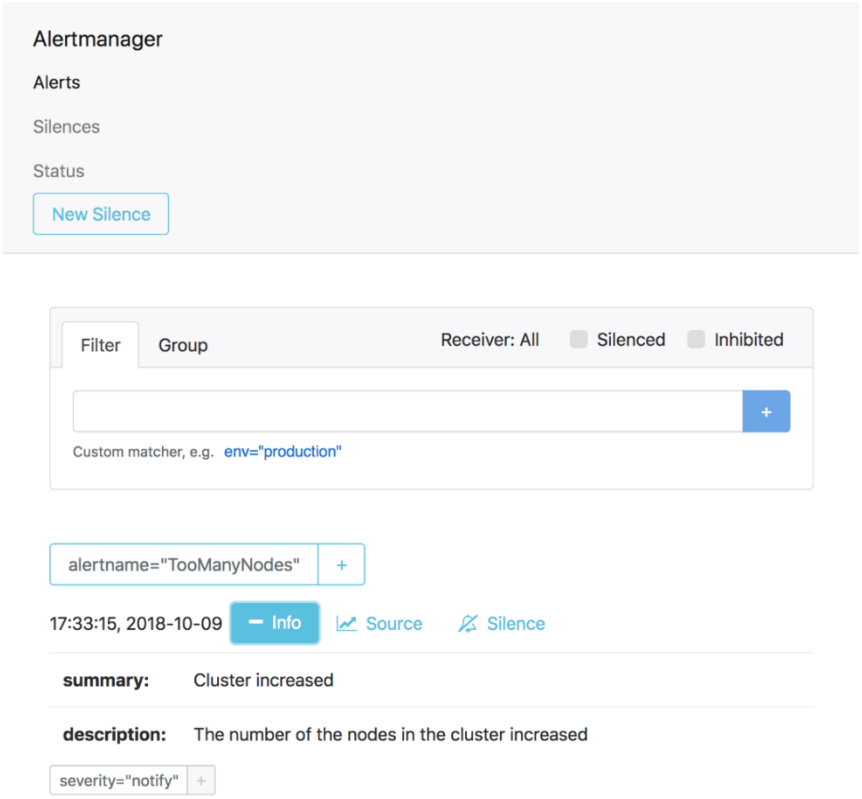
Show annotations

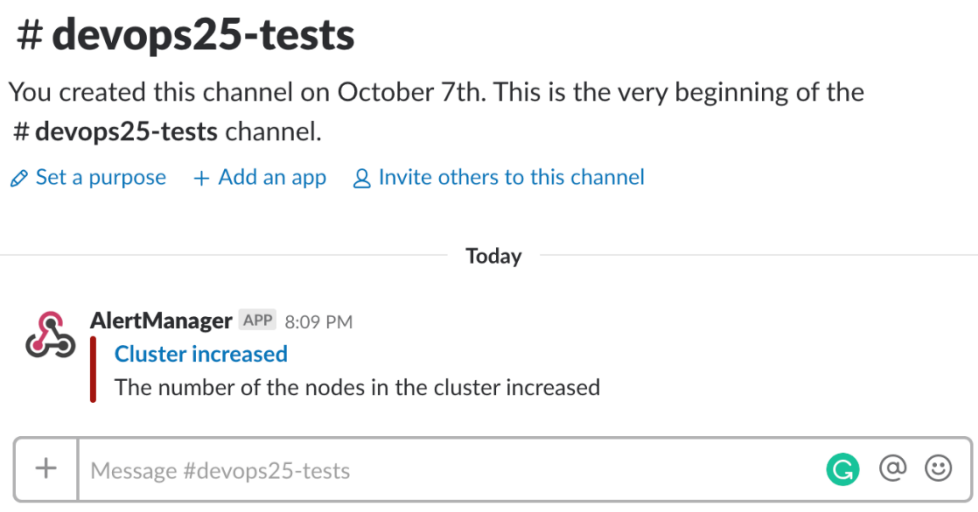
TooFewNodes (0 active)

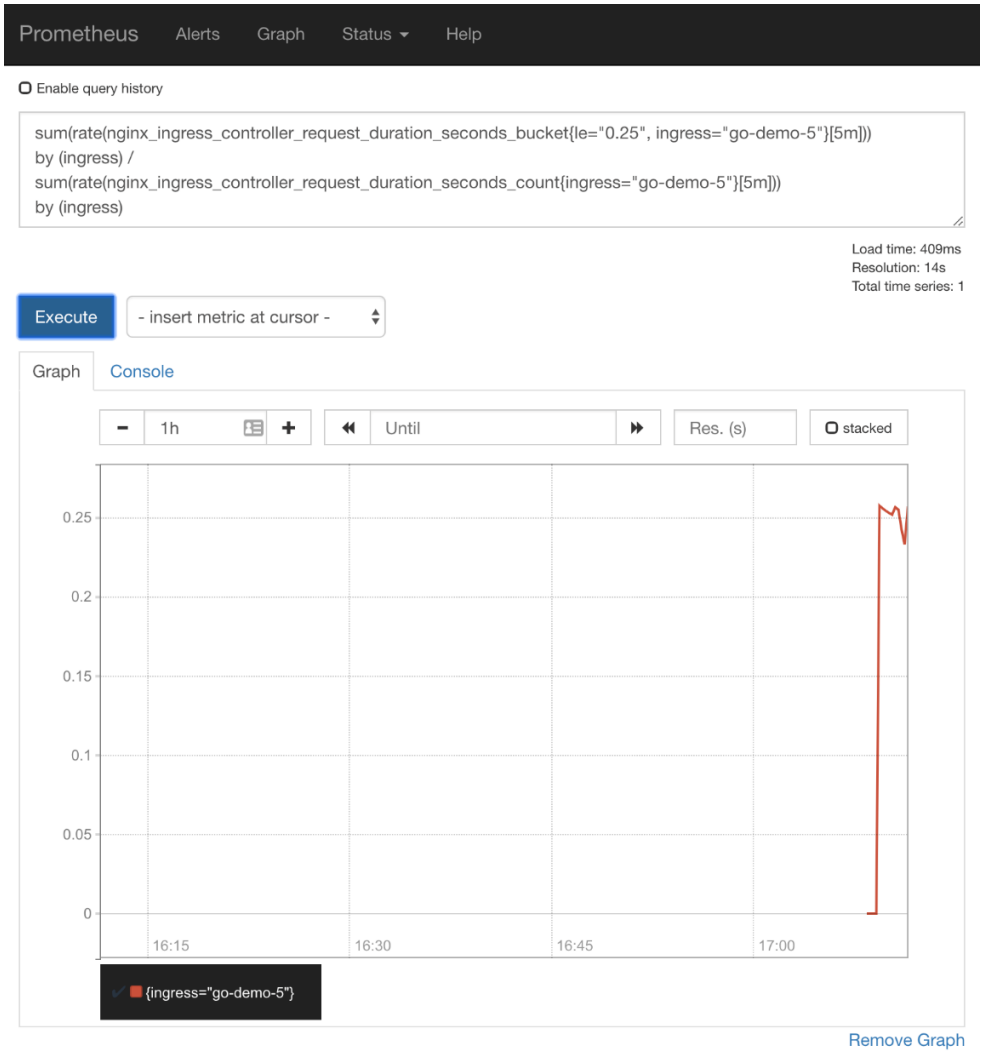
```
alert: TooFewNodes
expr: count(kube_node_info)
  < 1
for: 15m
labels:
  severity: notify
annotations:
  description: The number of the nodes in the cluster decreased
  summary: Cluster decreased
```

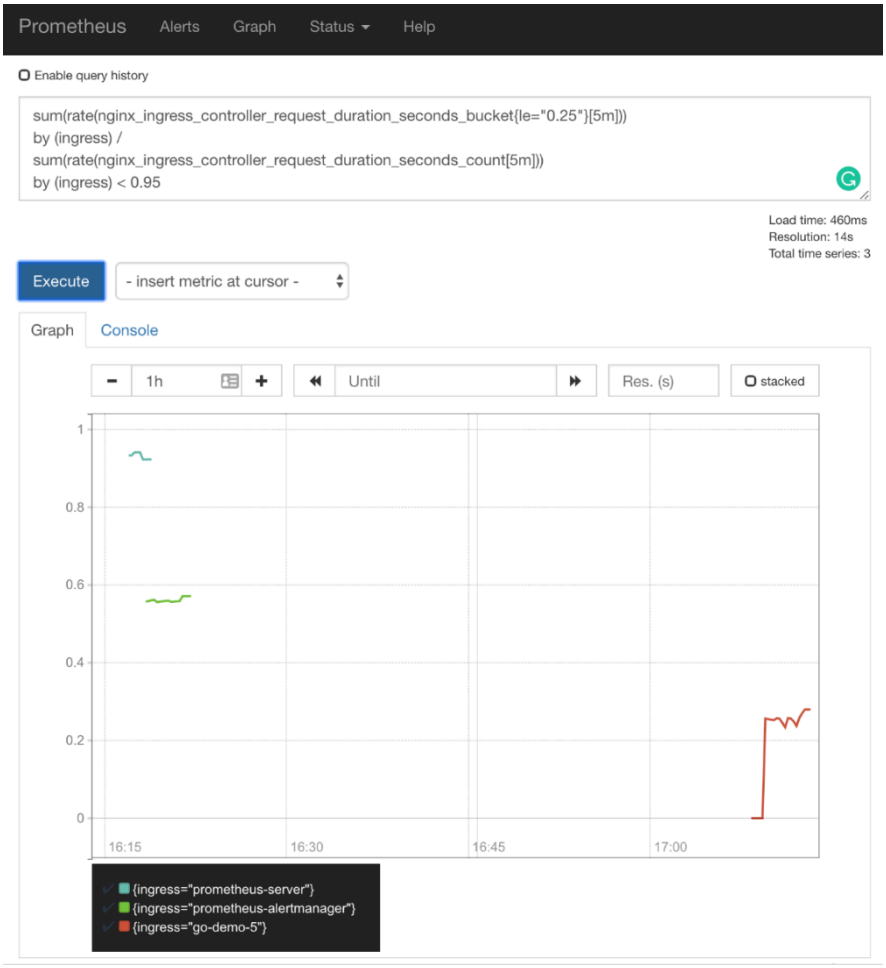
TooManyNodes (0 active)

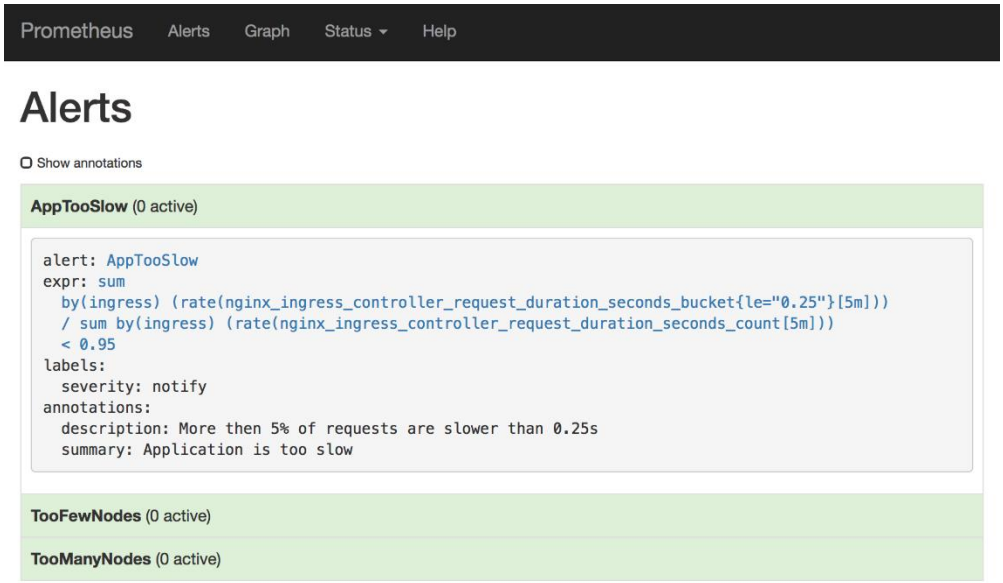

Prometheus
Alerts
Graph
Status
Help
Alerts
Show annotations
TooManyNodes (1 active)
alert: TooManyNodes
expr: count(kube_node_info)
> 0
for: 1m
labels:
severity: notify
annotations:
description: The number of the nodes in the cluster increased
summary: Cluster increased
Labels
State
Active Since
Value
alertname="TooManyNodes"
severity="notify"
FIRING
2018-10-09 17:32:15.218563345 +0000 UTC
3
TooFewNodes (0 active)

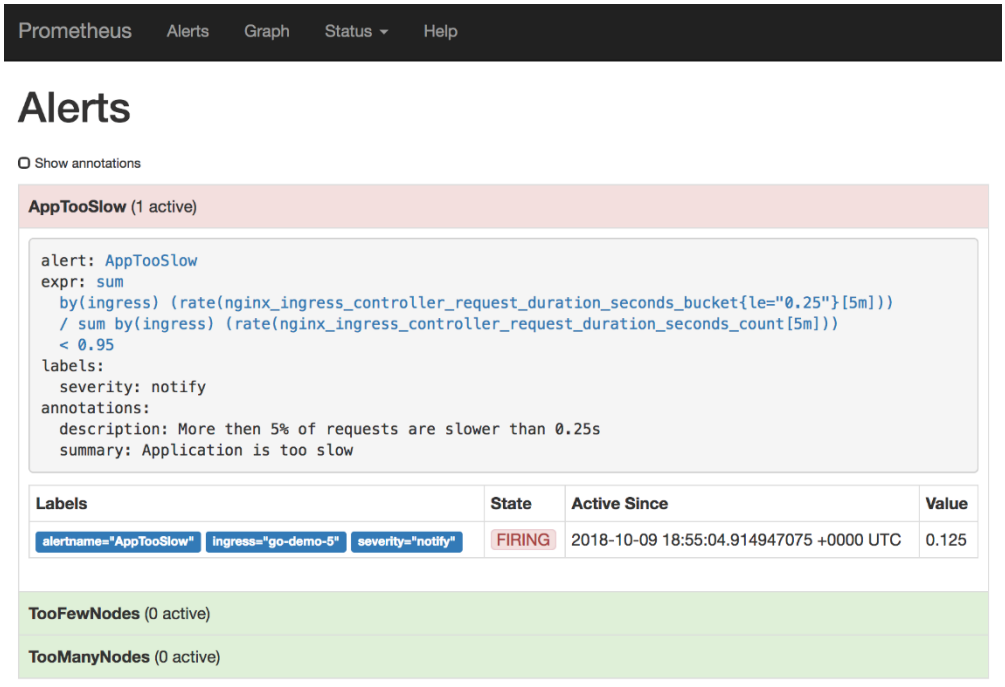

Alertmanager
Alerts
Silences
Status
New Silence
Filter
Group
Receiver: All
Silenced
Inhibited
Custom matcher, e.g. env="production"
alertname="TooManyNodes"
17:33:15, 2018-10-09
Info
Source
Silence
summary:
Cluster increased
description:
The number of the nodes in the cluster increased
severity="notify"


devops25-tests
You created this channel on October 7th. This is the very beginning of the # devops25-tests channel.
Set a purpose
Add an app
Invite others to this channel
Today
AlertManager
APP
8:09 PM
Cluster increased
The number of the nodes in the cluster increased
Message #devops25-tests


Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(rate(nginx_ingress_controller_request_duration_seconds_bucket{le="0.25", ingress="go-demo-5"}[5m]))
by (ingress) /
sum(rate(nginx_ingress_controller_request_duration_seconds_count{ingress="go-demo-5"}[5m]))
by (ingress)
Load time: 409ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
0.25
0.2
0.15
0.1
0.05
0
16:15
16:30
16:45
17:00
{ingress="go-demo-5"}
Remove Graph


Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(rate(nginx_ingress_controller_request_duration_seconds_bucket{le="0.25"}[5m]))
by (ingress) /
sum(rate(nginx_ingress_controller_request_duration_seconds_count[5m]))
by (ingress) < 0.95
Load time: 460ms
Resolution: 14s
Total time series: 3
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
1
0.8
0.6
0.4
0.2
0
16:15
16:30
16:45
17:00
{ingress="prometheus-server"}
{ingress="prometheus-alertmanager"}
{ingress="go-demo-5"}


Prometheus
Alerts
Graph
Status
Help
Alerts
Show annotations
AppTooSlow (0 active)
alert: AppTooSlow
expr: sum
by(ingress) (rate(nginx_ingress_controller_request_duration_seconds_bucket{le="0.25"}[5m]))
/ sum by(ingress) (rate(nginx_ingress_controller_request_duration_seconds_count[5m]))
< 0.95
labels:
severity: notify
annotations:
description: More then 5% of requests are slower than 0.25s
summary: Application is too slow
TooFewNodes (0 active)
TooManyNodes (0 active)


Prometheus
Alerts
Graph
Status
Help
Alerts
Show annotations
AppTooSlow (1 active)
alert: AppTooSlow
expr: sum
by(ingress) (rate(nginx_ingress_controller_request_duration_seconds_bucket{le="0.25"}[5m]))
/ sum by(ingress) (rate(nginx_ingress_controller_request_duration_seconds_count[5m]))
< 0.95
labels:
severity: notify
annotations:
description: More then 5% of requests are slower than 0.25s
summary: Application is too slow
Labels
State
Active Since
Value
alertname="AppTooSlow"
ingress="go-demo-5"
severity="notify"
FIRING
2018-10-09 18:55:04.914947075 +0000 UTC
0.125
TooFewNodes (0 active)
TooManyNodes (0 active)

devops25-tests

You created this channel on October 7th. This is the very beginning of the **# devops25-tests** channel.

Set a purpose + Add an app Invite others to this channel

Today

AlertManager APP 8:09 PM

Cluster increased

The number of the nodes in the cluster increased

AlertManager APP 8:54 PM

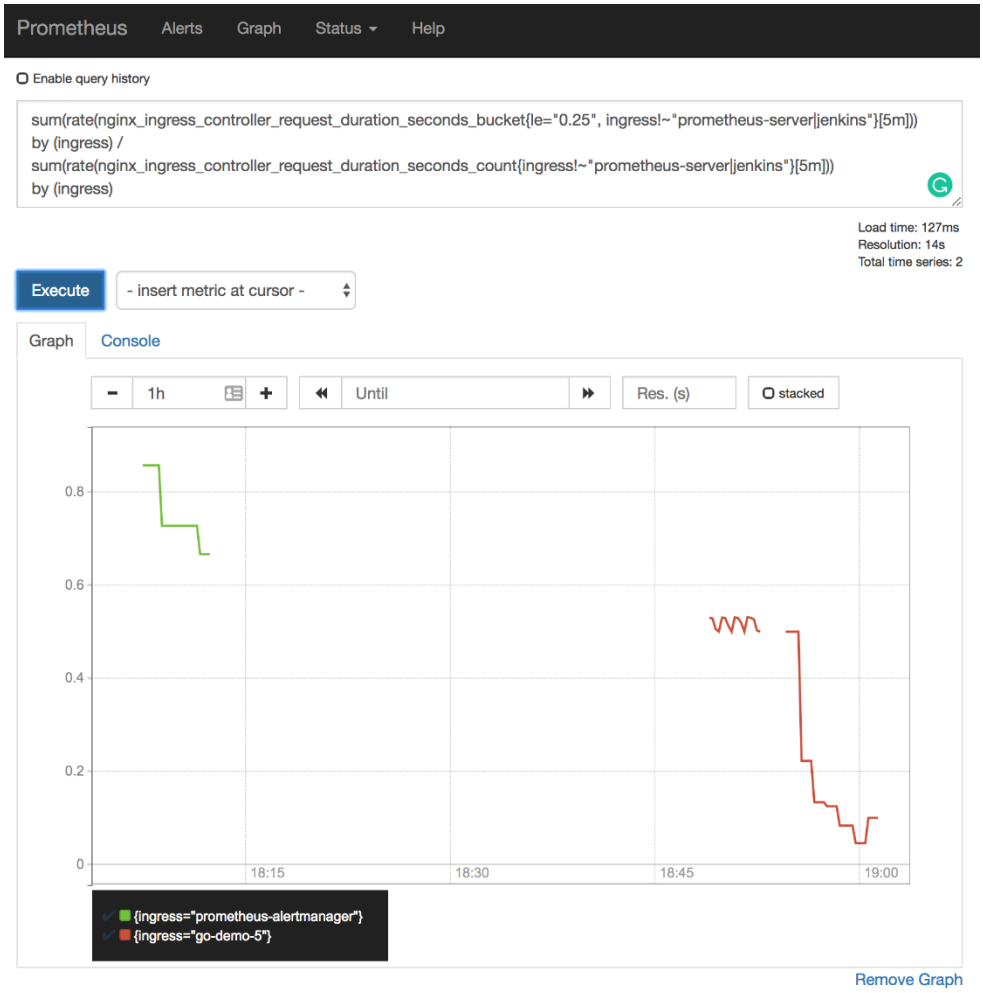
Cluster increased

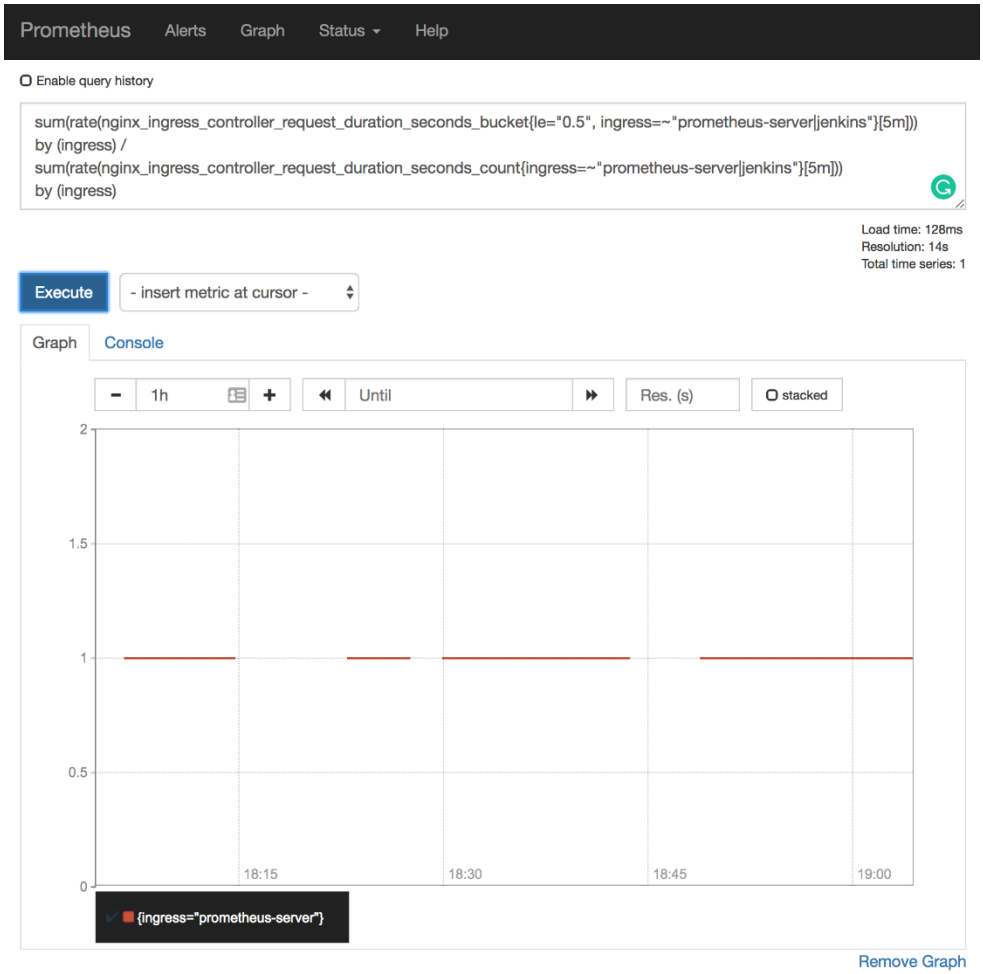
The number of the nodes in the cluster increased

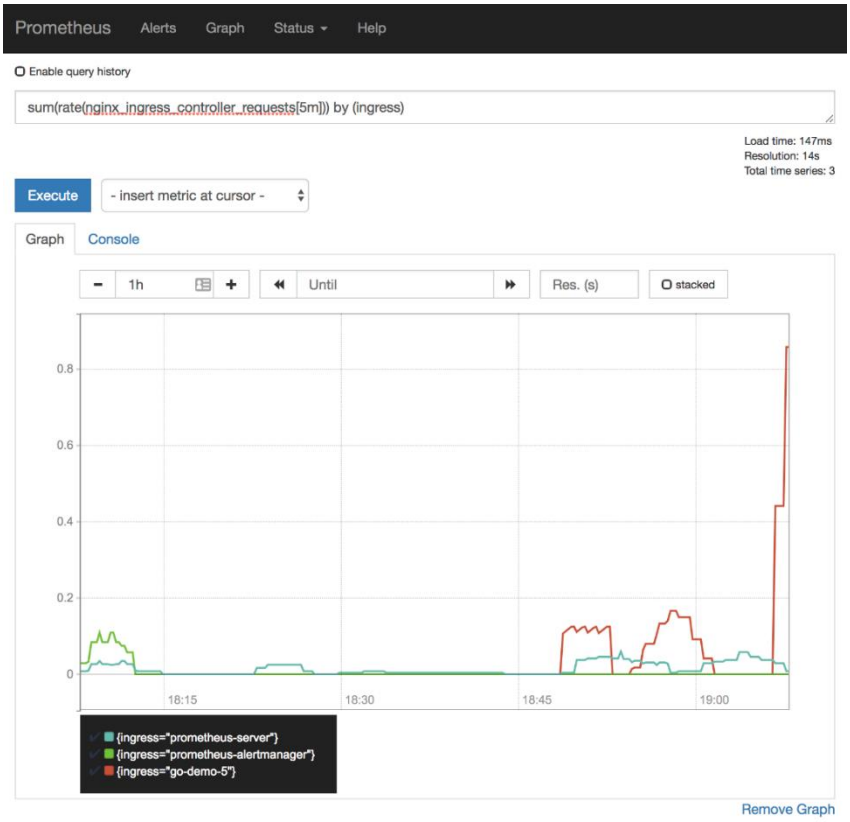
Application is too slow

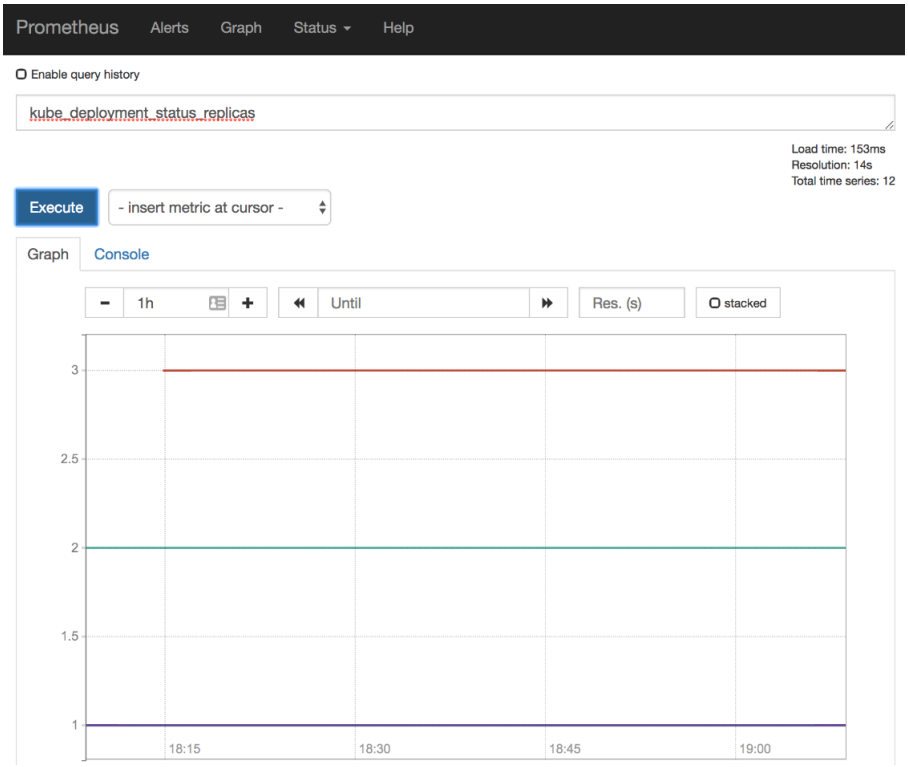
More then 5% of requests are slower than 0.25s

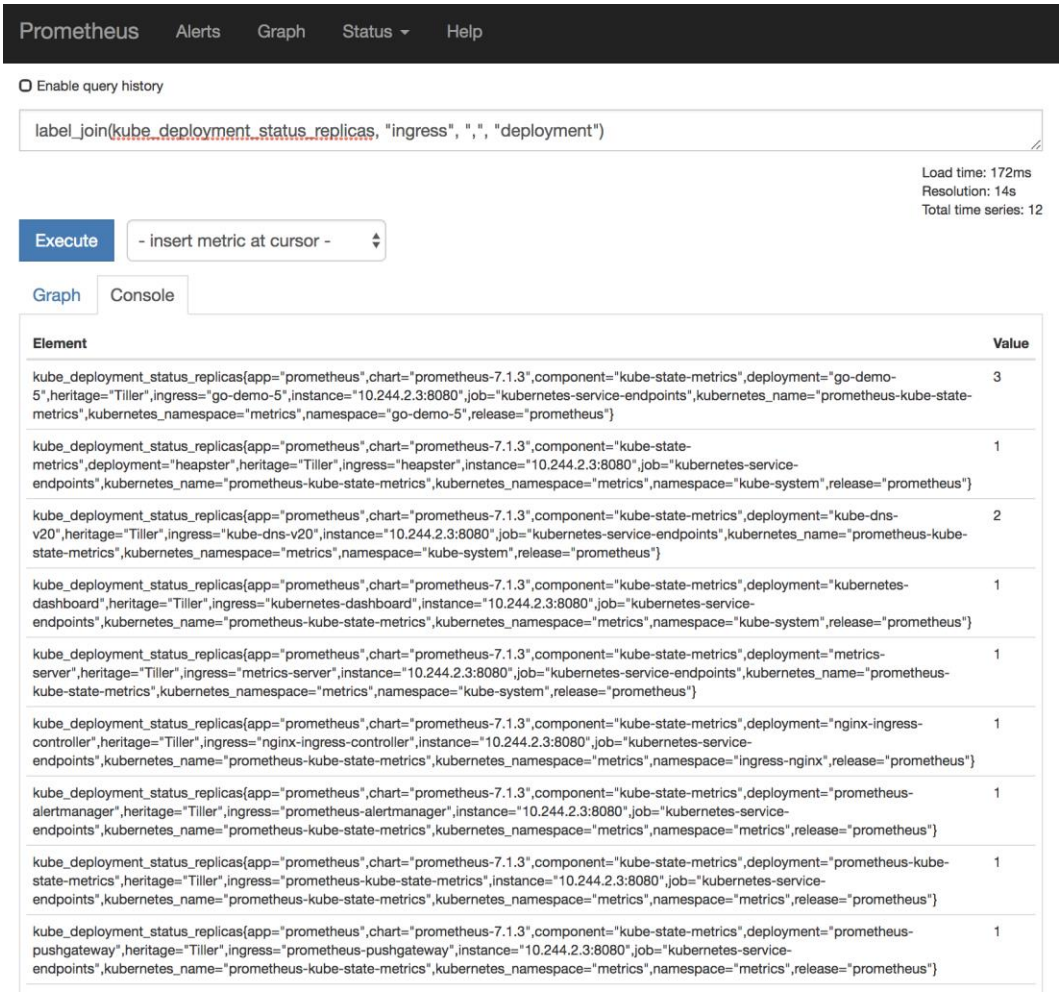
Message #devops25-tests

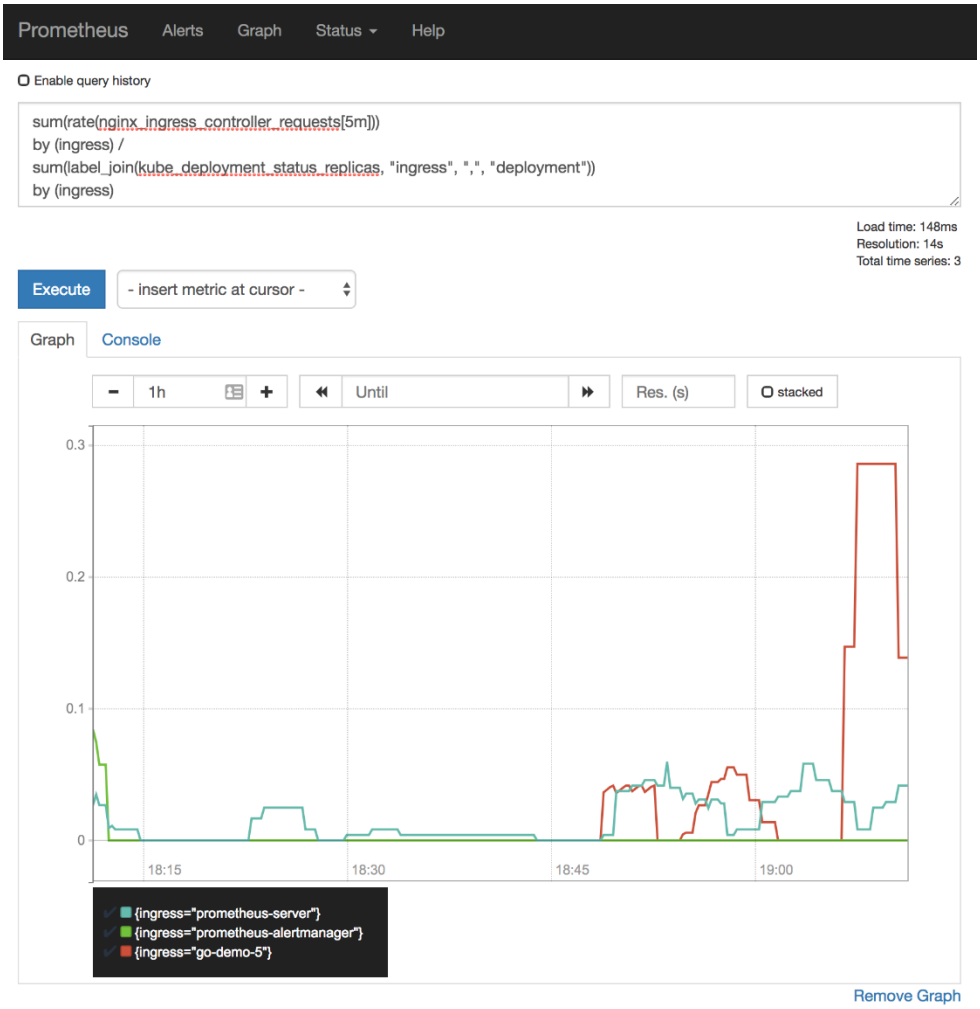

Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(rate(nginx_ingress_controller_request_duration_seconds_bucket{le="0.25", ingress!~"prometheus-server|jenkins"}[5m]))
by (ingress) /
sum(rate(nginx_ingress_controller_request_duration_seconds_count{ingress!~"prometheus-server|jenkins"}[5m]))
by (ingress)
Load time: 127ms
Resolution: 14s
Total time series: 2
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
0.8
0.6
0.4
0.2
0
18:15
18:30
18:45
19:00
{ingress="prometheus-alertmanager"}
{ingress="go-demo-5"}
Remove Graph

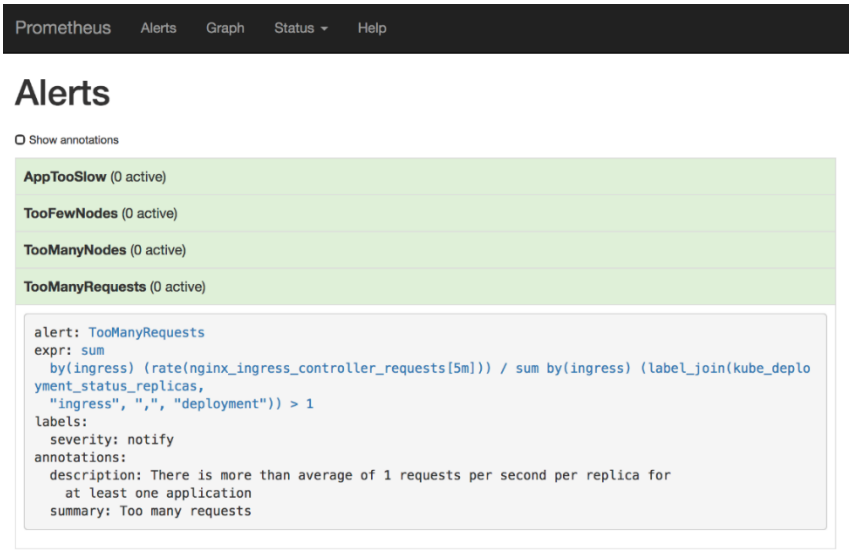

Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(rate(nginx_ingress_controller_request_duration_seconds_bucket{le="0.5", ingress=~"prometheus-server|jenkins"}[5m]))
by (ingress) /
sum(rate(nginx_ingress_controller_request_duration_seconds_count{ingress=~"prometheus-server|jenkins"}[5m]))
by (ingress)
Load time: 128ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
2
1.5
1
0.5
0
18:15
18:30
18:45
19:00
{ingress="prometheus-server"}
Remove Graph

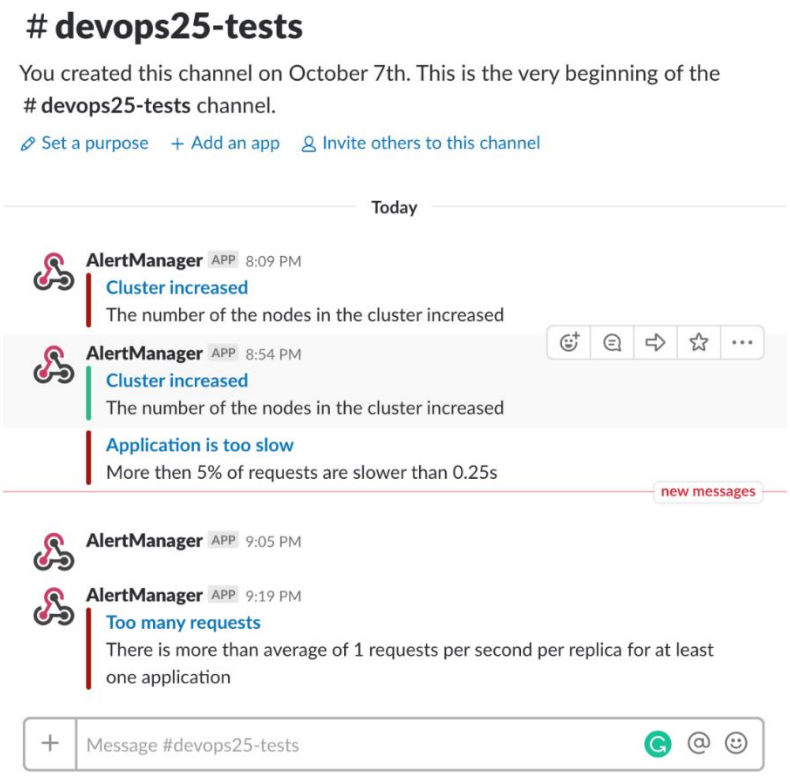

Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(rate(nginx_ingress_controller_requests[5m])) by (ingress)
Load time: 147ms
Resolution: 14s
Total time series: 3
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
0.8
0.6
0.4
0.2
0
18:15
18:30
18:45
19:00
{ingress="prometheus-server"}
{ingress="prometheus-alertmanager"}
{ingress="go-demo-5"}
Remove Graph

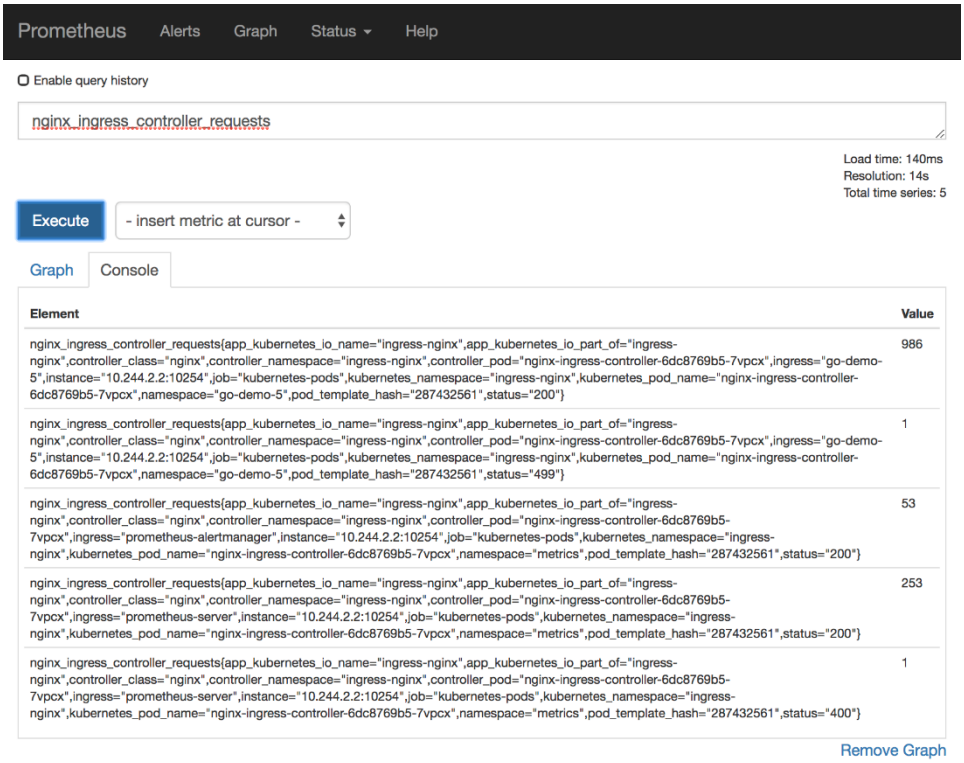

Prometheus
Alerts
Graph
Status
Help
Enable query history
kube_deployment_status_replicas
Load time: 153ms
Resolution: 14s
Total time series: 12
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
3
2.5
2
1.5
1
18:15
18:30
18:45
19:00

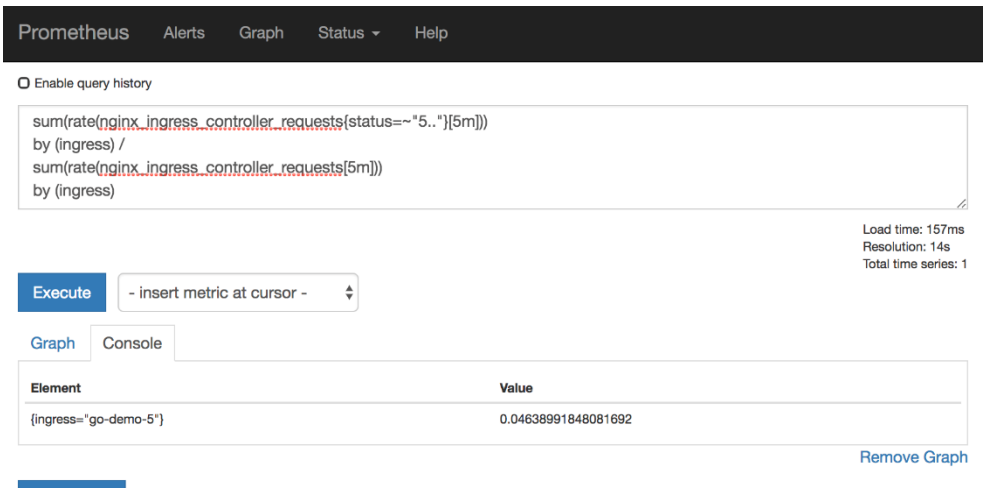

Prometheus
Alerts
Graph
Status
Help
Enable query history
label_join(kube_deployment_status_replicas, "ingress", ",", "deployment")
Load time: 172ms
Resolution: 14s
Total time series: 12
Execute
- insert metric at cursor -
Graph
Console
Element
Value
kube_deployment_status_replicas{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",deployment="go-demo-5",heritage="Tiller",ingress="go-demo-5",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",release="prometheus"}
3
kube_deployment_status_replicas{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",deployment="heapster",heritage="Tiller",ingress="heapster",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="kube-system",release="prometheus"}
1
kube_deployment_status_replicas{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",deployment="kube-dns-v20",heritage="Tiller",ingress="kube-dns-v20",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="kube-system",release="prometheus"}
2
kube_deployment_status_replicas{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",deployment="kubernetes-dashboard",heritage="Tiller",ingress="kubernetes-dashboard",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="kube-system",release="prometheus"}
1
kube_deployment_status_replicas{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",deployment="metrics-server",heritage="Tiller",ingress="metrics-server",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="kube-system",release="prometheus"}
1
kube_deployment_status_replicas{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",deployment="nginx-ingress-controller",heritage="Tiller",ingress="nginx-ingress-controller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="ingress-nginx",release="prometheus"}
1
kube_deployment_status_replicas{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",deployment="prometheus-alertmanager",heritage="Tiller",ingress="prometheus-alertmanager",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="metrics",release="prometheus"}
1
kube_deployment_status_replicas{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",deployment="prometheus-kube-state-metrics",heritage="Tiller",ingress="prometheus-kube-state-metrics",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="metrics",release="prometheus"}
1
kube_deployment_status_replicas{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",deployment="prometheus-pushgateway",heritage="Tiller",ingress="prometheus-pushgateway",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="metrics",release="prometheus"}
1

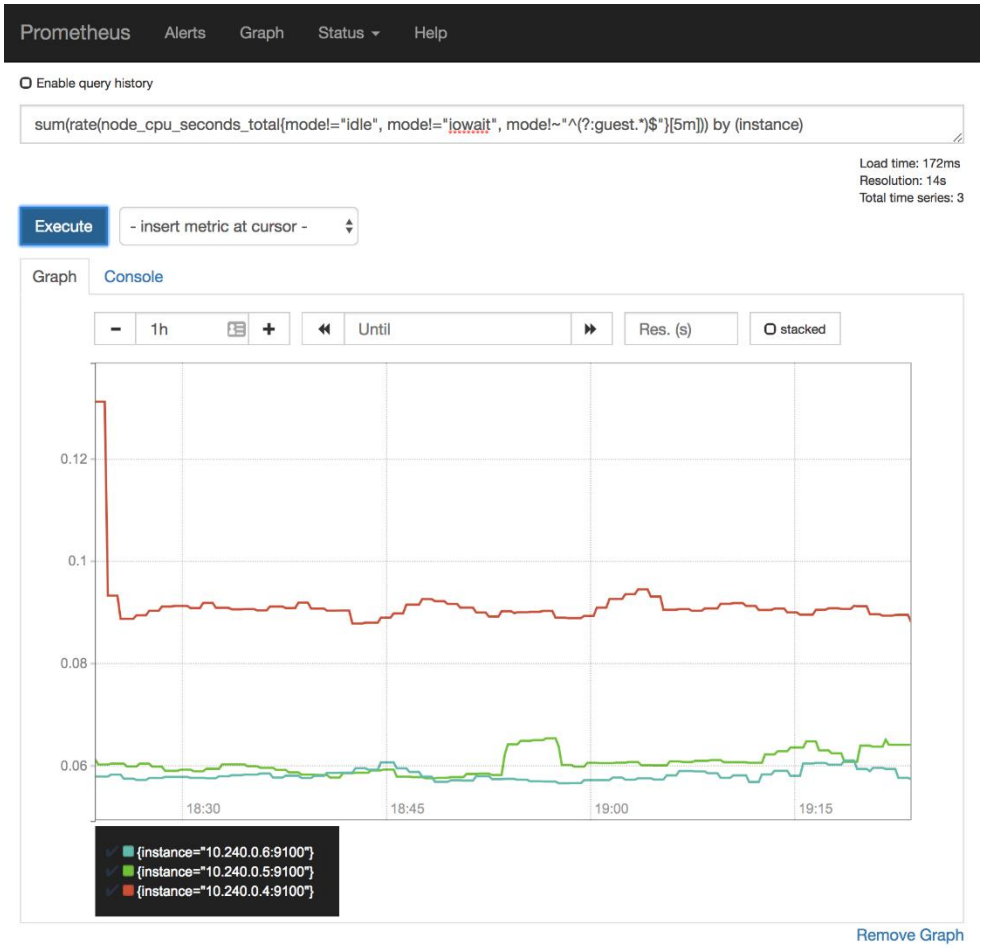

Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(rate(nginx_ingress_controller_requests[5m]))
by (ingress) /
sum(label_join(kube_deployment_status_replicas, "ingress", ",", "deployment"))
by (ingress)
Load time: 148ms
Resolution: 14s
Total time series: 3
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
0.3
0.2
0.1
0
18:15
18:30
18:45
19:00
{ingress="prometheus-server"}
{ingress="prometheus-alertmanager"}
{ingress="go-demo-5"}
Remove Graph

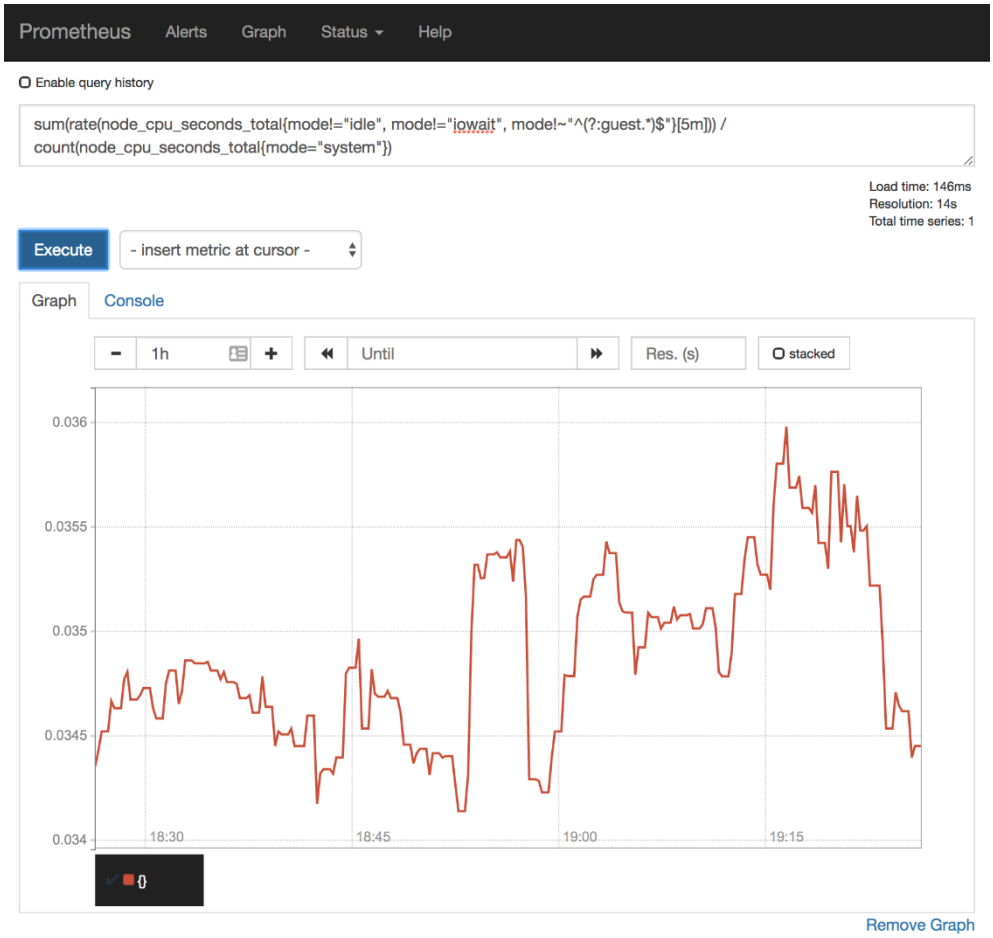

Prometheus
Alerts
Graph
Status
Help
Alerts
Show annotations
AppTooSlow (0 active)
TooFewNodes (0 active)
TooManyNodes (0 active)
TooManyRequests (0 active)
alert: TooManyRequests
expr: sum
by(ingress) (rate(nginx_ingress_controller_requests[5m])) / sum by(ingress) (label_join(kube_deployment_status_replicas,
"ingress", ",", "deployment")) > 1
labels:
severity: notify
annotations:
description: There is more than average of 1 requests per second per replica for
at least one application
summary: Too many requests

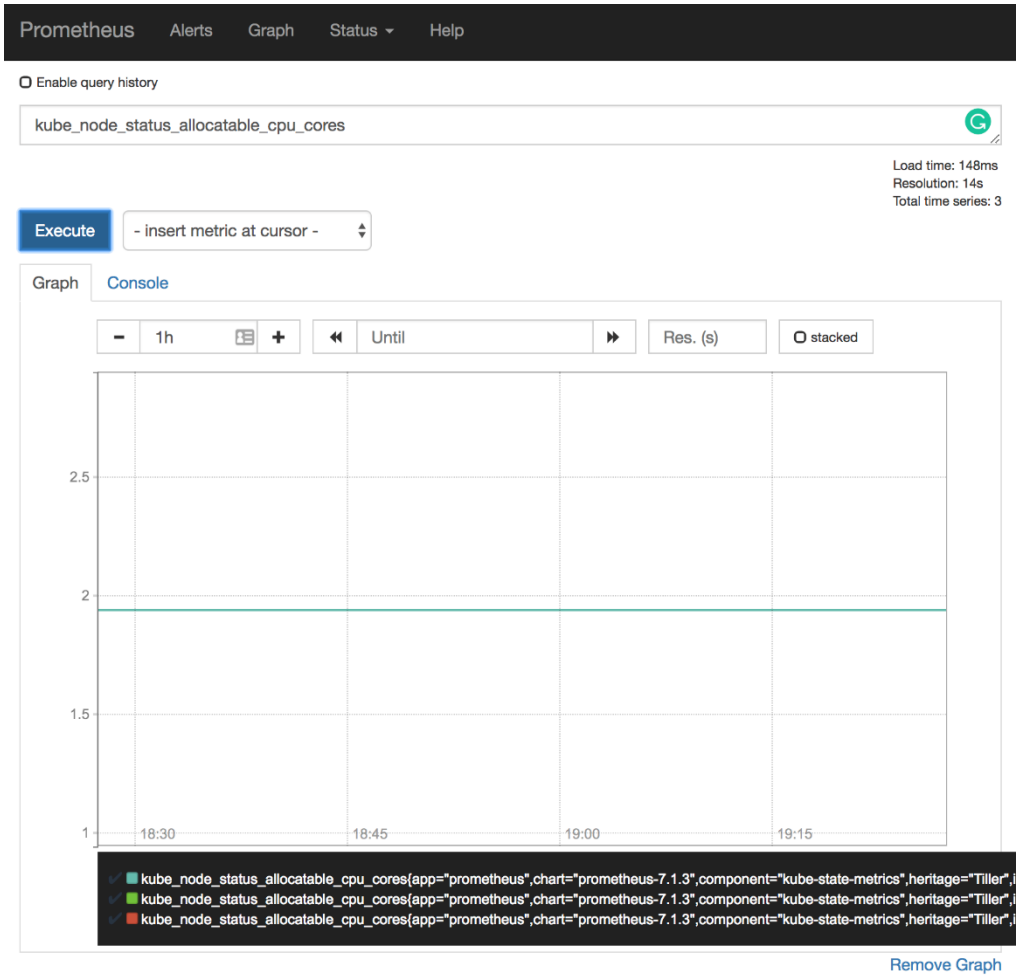

devops25-tests
You created this channel on October 7th. This is the very beginning of the # devops25-tests channel.
Set a purpose
Add an app
Invite others to this channel
Today
AlertManager APP 8:09 PM
Cluster increased
The number of the nodes in the cluster increased
AlertManager APP 8:54 PM
Cluster increased
The number of the nodes in the cluster increased
Application is too slow
More then 5% of requests are slower than 0.25s
new messages
AlertManager APP 9:05 PM
AlertManager APP 9:19 PM
Too many requests
There is more than average of 1 requests per second per replica for at least one application
Message #devops25-tests

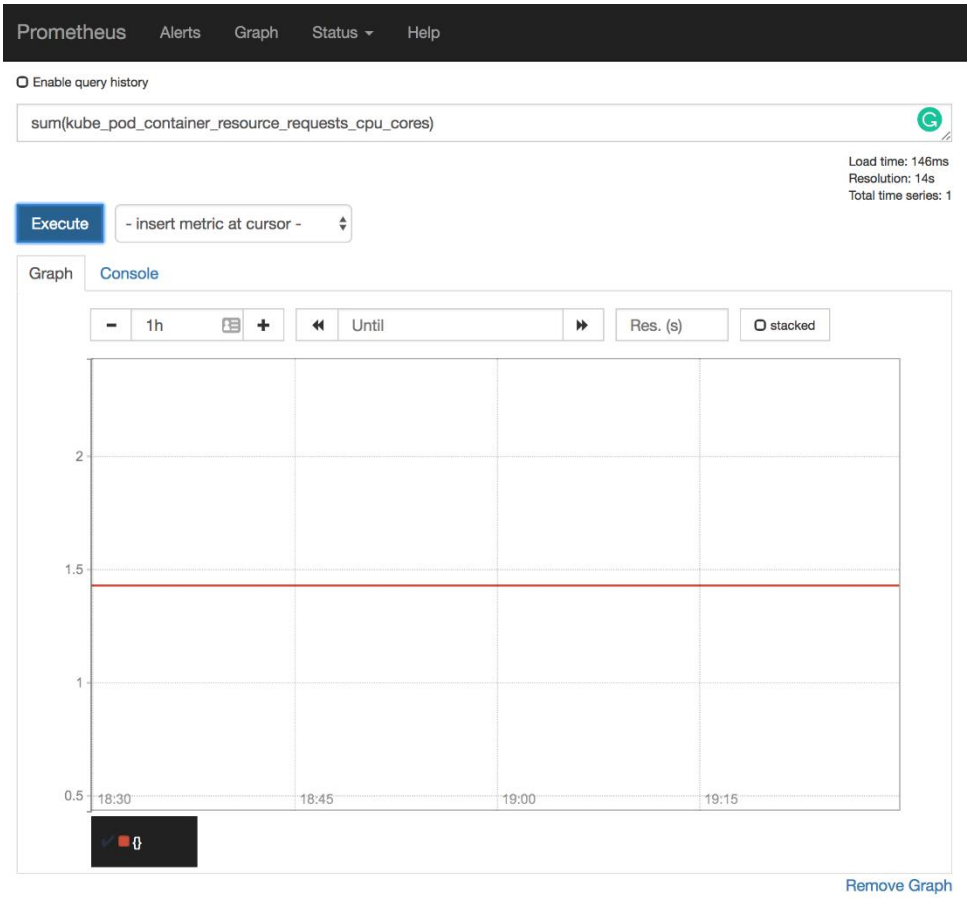

Prometheus
Alerts
Graph
Status
Help
Enable query history
nginx_ingress_controller_requests
Load time: 140ms
Resolution: 14s
Total time series: 5
Execute
- insert metric at cursor -
Graph
Console
Element
Value
nginx_ingress_controller_requests{app_kubernetes_io_name="ingress-nginx",app_kubernetes_io_part_of="ingress-nginx",controller_class="nginx",controller_namespace="ingress-nginx",controller_pod="nginx-ingress-controller-6dc8769b5-7vpcx",ingress="go-demo-5",instance="10.244.2.2:10254",job="kubernetes-pods",kubernetes_namespace="ingress-nginx",kubernetes_pod_name="nginx-ingress-controller-6dc8769b5-7vpcx",namespace="go-demo-5",pod_template_hash="287432561",status="200"}
986
nginx_ingress_controller_requests{app_kubernetes_io_name="ingress-nginx",app_kubernetes_io_part_of="ingress-nginx",controller_class="nginx",controller_namespace="ingress-nginx",controller_pod="nginx-ingress-controller-6dc8769b5-7vpcx",ingress="go-demo-5",instance="10.244.2.2:10254",job="kubernetes-pods",kubernetes_namespace="ingress-nginx",kubernetes_pod_name="nginx-ingress-controller-6dc8769b5-7vpcx",namespace="go-demo-5",pod_template_hash="287432561",status="499"}
1
nginx_ingress_controller_requests{app_kubernetes_io_name="ingress-nginx",app_kubernetes_io_part_of="ingress-nginx",controller_class="nginx",controller_namespace="ingress-nginx",controller_pod="nginx-ingress-controller-6dc8769b5-7vpcx",ingress="prometheus-alertmanager",instance="10.244.2.2:10254",job="kubernetes-pods",kubernetes_namespace="ingress-nginx",kubernetes_pod_name="nginx-ingress-controller-6dc8769b5-7vpcx",namespace="metrics",pod_template_hash="287432561",status="200"}
53
nginx_ingress_controller_requests{app_kubernetes_io_name="ingress-nginx",app_kubernetes_io_part_of="ingress-nginx",controller_class="nginx",controller_namespace="ingress-nginx",controller_pod="nginx-ingress-controller-6dc8769b5-7vpcx",ingress="prometheus-server",instance="10.244.2.2:10254",job="kubernetes-pods",kubernetes_namespace="ingress-nginx",kubernetes_pod_name="nginx-ingress-controller-6dc8769b5-7vpcx",namespace="metrics",pod_template_hash="287432561",status="200"}
253
nginx_ingress_controller_requests{app_kubernetes_io_name="ingress-nginx",app_kubernetes_io_part_of="ingress-nginx",controller_class="nginx",controller_namespace="ingress-nginx",controller_pod="nginx-ingress-controller-6dc8769b5-7vpcx",ingress="prometheus-server",instance="10.244.2.2:10254",job="kubernetes-pods",kubernetes_namespace="ingress-nginx",kubernetes_pod_name="nginx-ingress-controller-6dc8769b5-7vpcx",namespace="metrics",pod_template_hash="287432561",status="400"}
1
Remove Graph


Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(rate(nginx_ingress_controller_requests{status=~"5.."}[5m]))
by (ingress) /
sum(rate(nginx_ingress_controller_requests[5m]))
by (ingress)
Load time: 157ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
Element
Value
{ingress="go-demo-5"}
0.04638991848081692
Remove Graph


Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(rate(node_cpu_seconds_total{mode!="idle", mode!="iowait", mode!~"^(?:guest.*)$"}[5m])) by (instance)
Load time: 172ms
Resolution: 14s
Total time series: 3
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
0.12
0.1
0.08
0.06
18:30
18:45
19:00
19:15
{instance="10.240.0.6:9100"}
{instance="10.240.0.5:9100"}
{instance="10.240.0.4:9100"}
Remove Graph


Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(rate(node_cpu_seconds_total{mode!="idle", mode!="iowait", mode!~"^(?:guest.*)$"}[5m])) /
count(node_cpu_seconds_total{mode="system"})
Load time: 146ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
0.036
0.0355
0.035
0.0345
0.034
18:30
18:45
19:00
19:15
{}
Remove Graph


Prometheus
Alerts
Graph
Status
Help
Enable query history
kube_node_status_allocatable_cpu_cores
Load time: 148ms
Resolution: 14s
Total time series: 3
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
2.5
2
1.5
1
18:30
18:45
19:00
19:15
kube_node_status_allocatable_cpu_cores{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",
kube_node_status_allocatable_cpu_cores{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",
kube_node_status_allocatable_cpu_cores{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",
Remove Graph


Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(kube_pod_container_resource_requests_cpu_cores)
Load time: 146ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
2
1.5
1
0.5
18:30
18:45
19:00
19:15
Remove Graph

Prometheus Alerts Graph Status Help

Alerts

Show annotations

AppTooSlow (0 active)

NotEnoughCPU (0 active)

```
alert: NotEnoughCPU
expr: sum(rate(node_cpu_seconds_total{mode!="idle",mode!="iowait",mode!~"^(?:guest.*)$"}[5m]))
  / count(node_cpu_seconds_total{mode="system"}) > 0.9
for: 30m
labels:
  severity: notify
annotations:
  description: CPU usage of the cluster is above 90%
  summary: There's not enough CPU
```

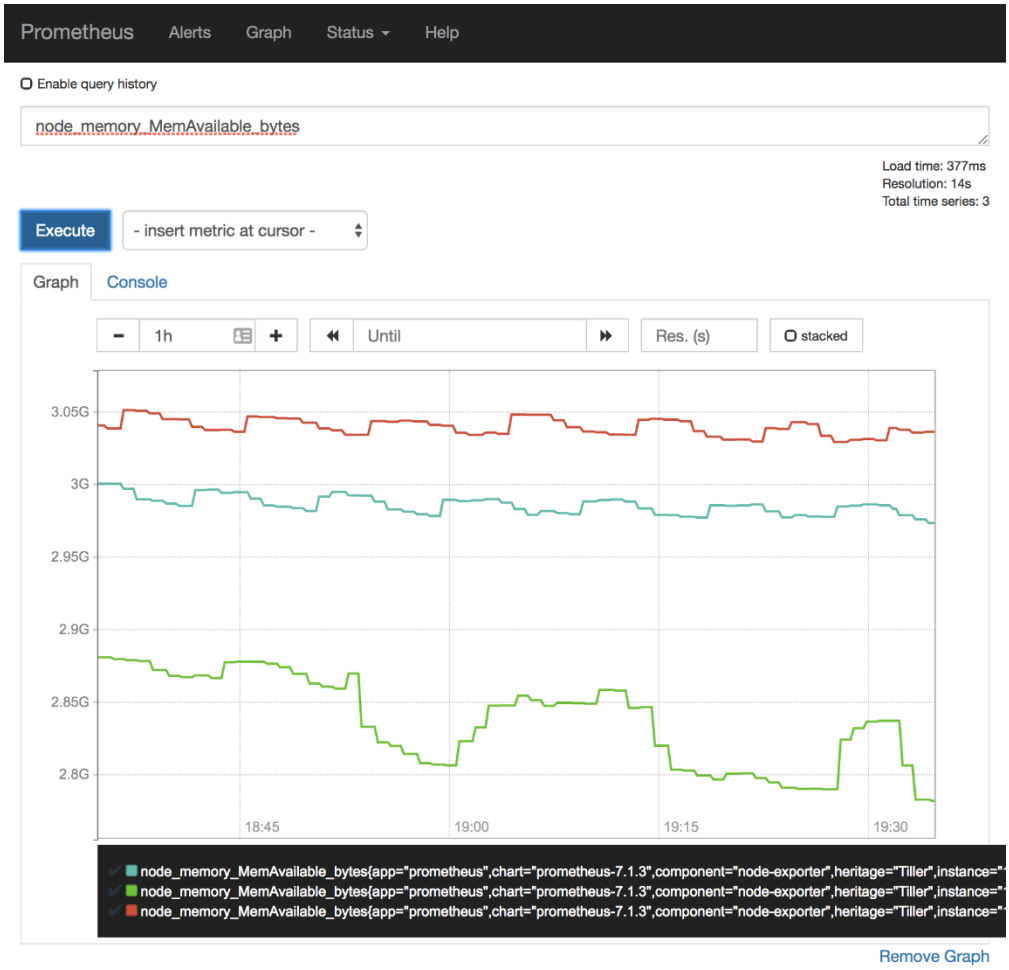
TooFewNodes (0 active)

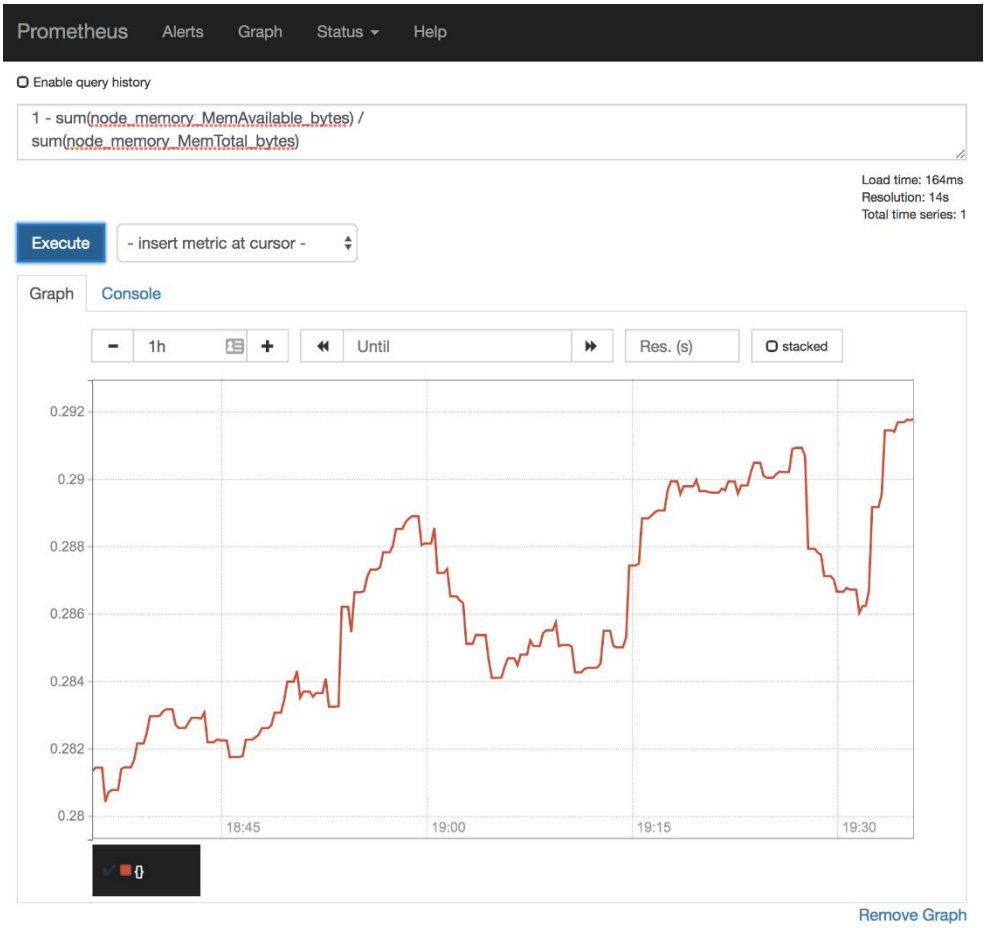
TooManyNodes (0 active)

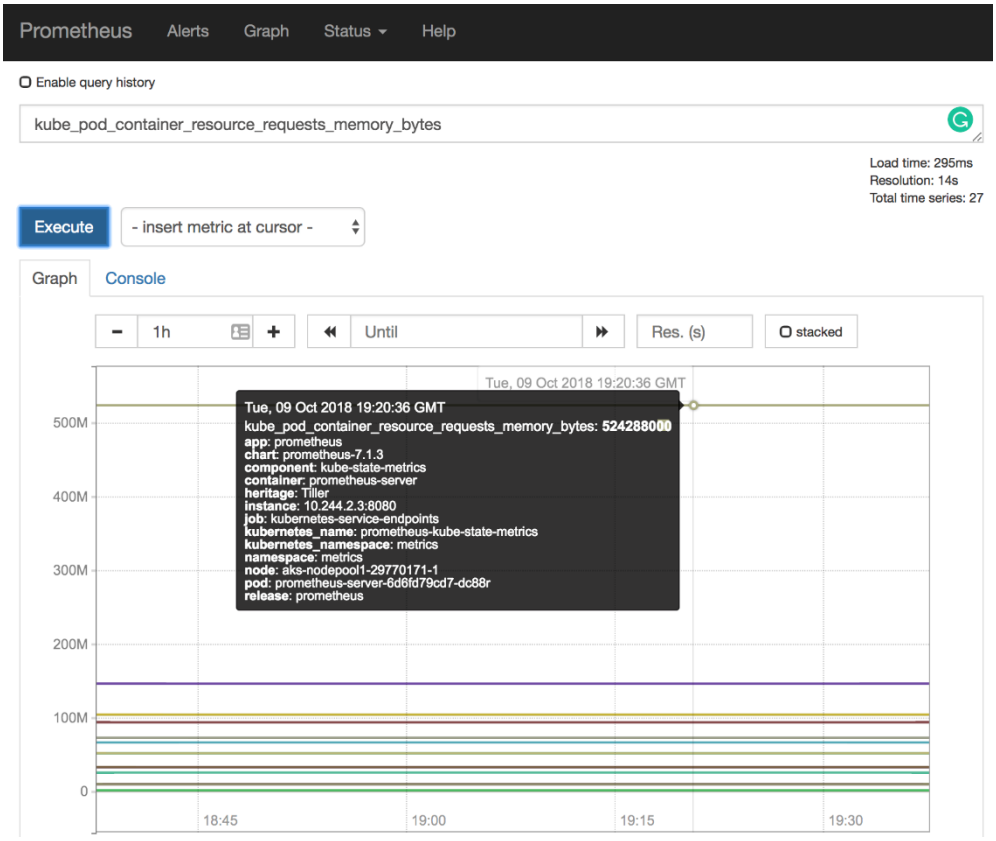
TooManyRequests (0 active)

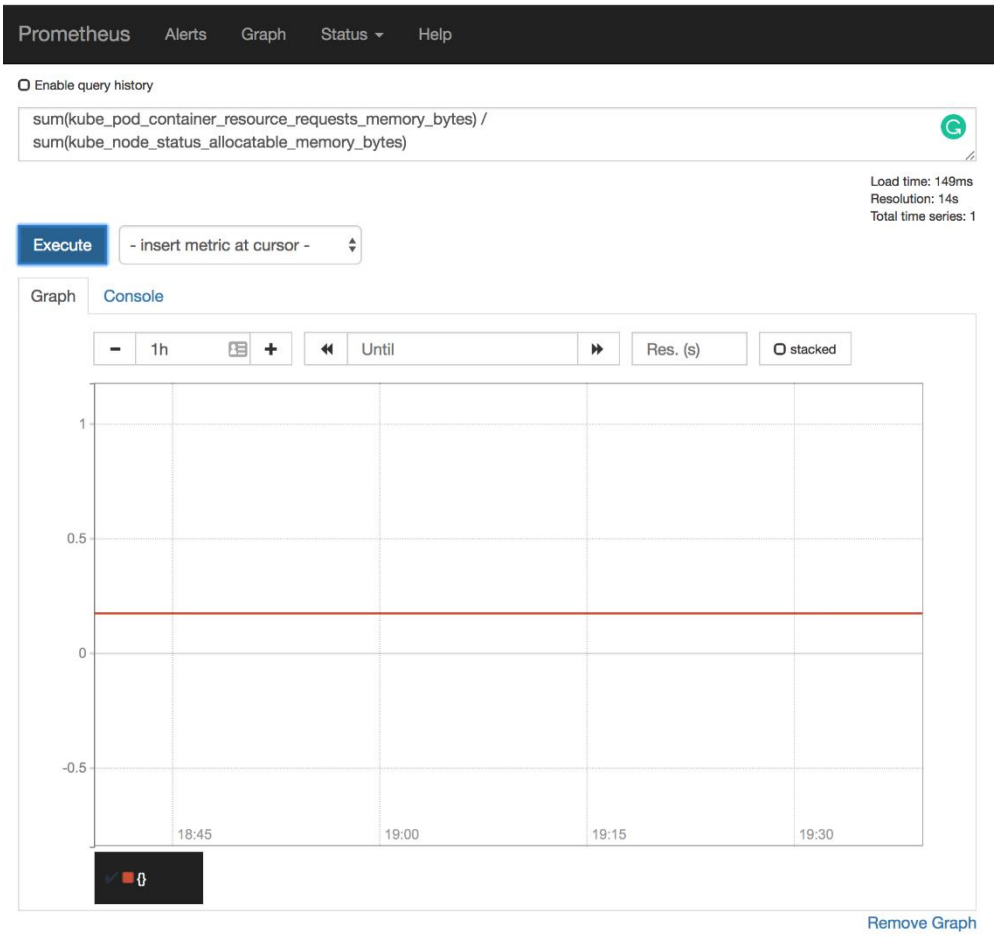
TooMuchCPURequested (0 active)

```
alert: TooMuchCPURequested
expr: sum(kube_pod_container_resource_requests_cpu_cores)
  / sum(kube_node_status_allocatable_cpu_cores) > 0.9
for: 30m
labels:
  severity: notify
annotations:
  description: More than 90% of allocatable CPU is requested
  summary: There's not enough allocatable CPU
```


Prometheus
Alerts
Graph
Status
Help
Enable query history
node_memory_MemAvailable_bytes
Load time: 377ms
Resolution: 14s
Total time series: 3
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
3.05G
3G
2.95G
2.9G
2.85G
2.8G
18:45
19:00
19:15
19:30
node_memory_MemAvailable_bytes{app="prometheus",chart="prometheus-7.1.3",component="node-exporter",heritage="Tiller",instance="
node_memory_MemAvailable_bytes{app="prometheus",chart="prometheus-7.1.3",component="node-exporter",heritage="Tiller",instance="
node_memory_MemAvailable_bytes{app="prometheus",chart="prometheus-7.1.3",component="node-exporter",heritage="Tiller",instance="
Remove Graph


Prometheus
Alerts
Graph
Status
Help
Enable query history
1 - sum(node_memory_MemAvailable_bytes) /
sum(node_memory_MemTotal_bytes)
Load time: 164ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
0.292
0.29
0.288
0.286
0.284
0.282
0.28
18:45
19:00
19:15
19:30
{}
Remove Graph


Prometheus
Alerts
Graph
Status
Help
Enable query history
kube_pod_container_resource_requests_memory_bytes
Load time: 295ms
Resolution: 14s
Total time series: 27
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
Tue, 09 Oct 2018 19:20:36 GMT
Tue, 09 Oct 2018 19:20:36 GMT
kube_pod_container_resource_requests_memory_bytes: 524288000
app: prometheus
chart: prometheus-7.1.3
component: kube-state-metrics
container: prometheus-server
heritage: Tiller
instance: 10.244.2.3:8080
job: kubernetes-service-endpoints
kubernetes_name: prometheus-kube-state-metrics
kubernetes_namespace: metrics
namespace: metrics
node: aks-nodepool1-29770171-1
pod: prometheus-server-6d6fd79cd7-dc88r
release: prometheus
500M
400M
300M
200M
100M
0
18:45
19:00
19:15
19:30


Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(kube_pod_container_resource_requests_memory_bytes) /
sum(kube_node_status_allocatable_memory_bytes)
Load time: 149ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
1
0.5
0
-0.5
18:45
19:00
19:15
19:30
{}
Remove Graph

Prometheus Alerts Graph Status Help

Alerts

Show annotations

AppTooSlow (0 active)

NotEnoughCPU (0 active)

NotEnoughMemory (0 active)

```
alert: NotEnoughMemory
expr: 1
  - sum(node_memory_MemAvailable_bytes) / sum(node_memory_MemTotal_bytes) > 0.9
for: 30m
labels:
  severity: notify
annotations:
  description: Memory usage of the cluster is above 90%
  summary: There's not enough memory
```

TooFewNodes (0 active)

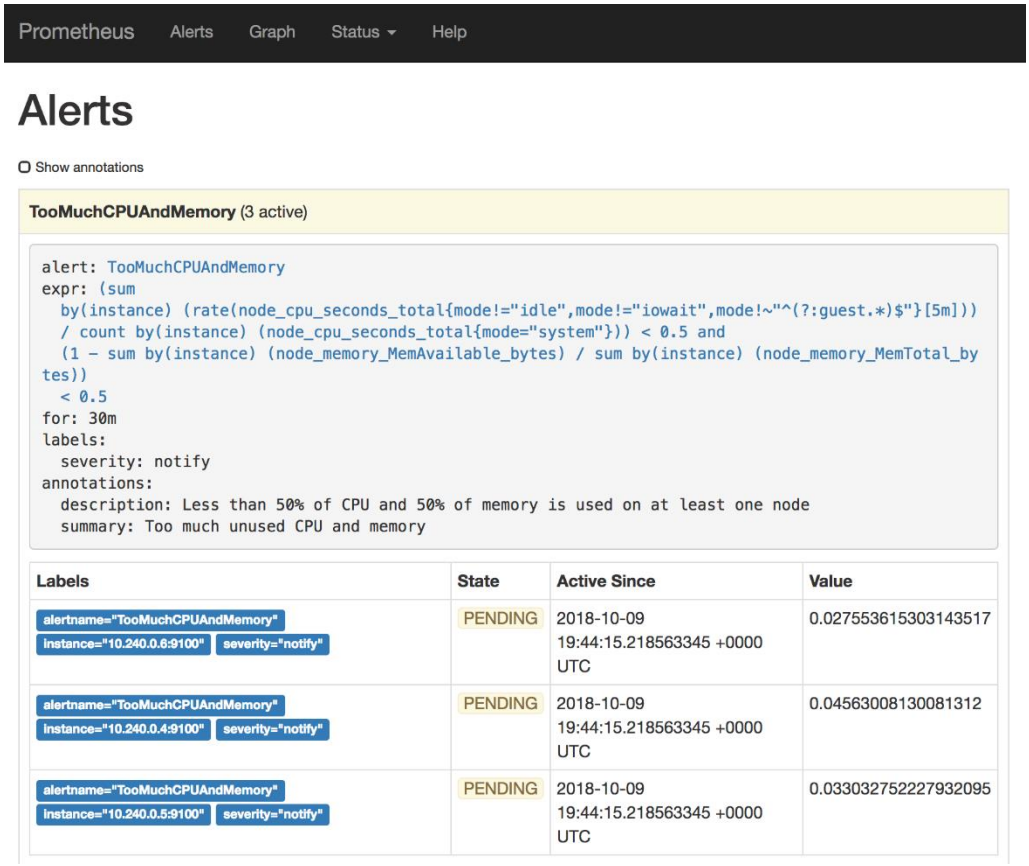
TooManyNodes (0 active)

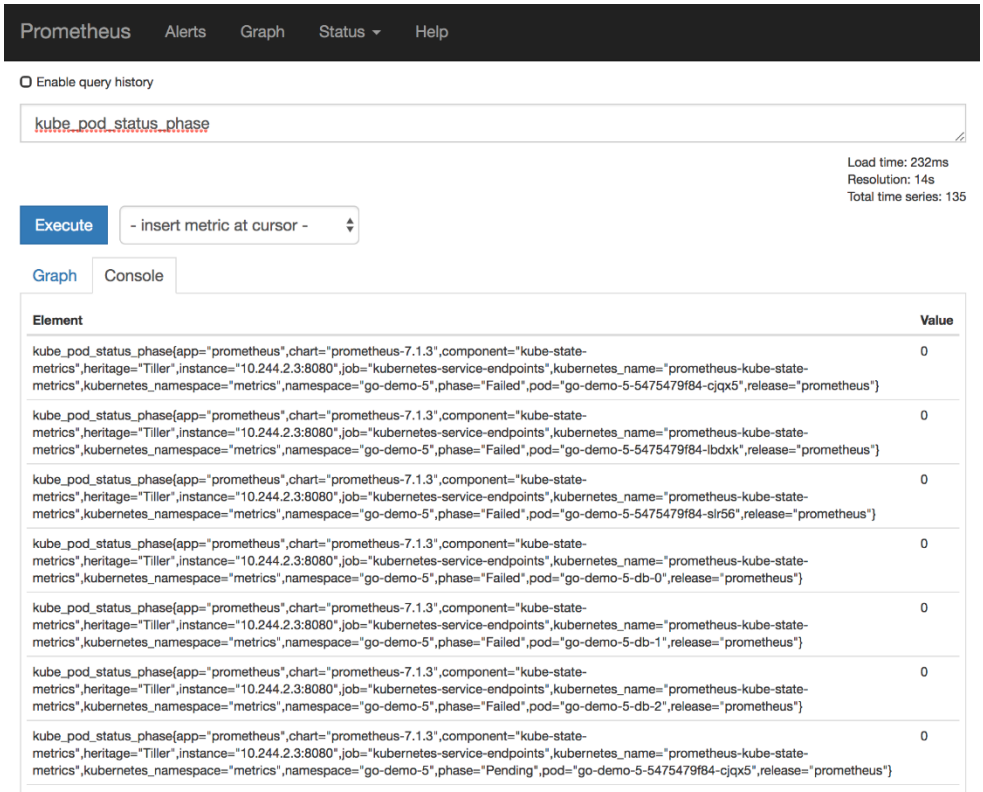
TooManyRequests (0 active)

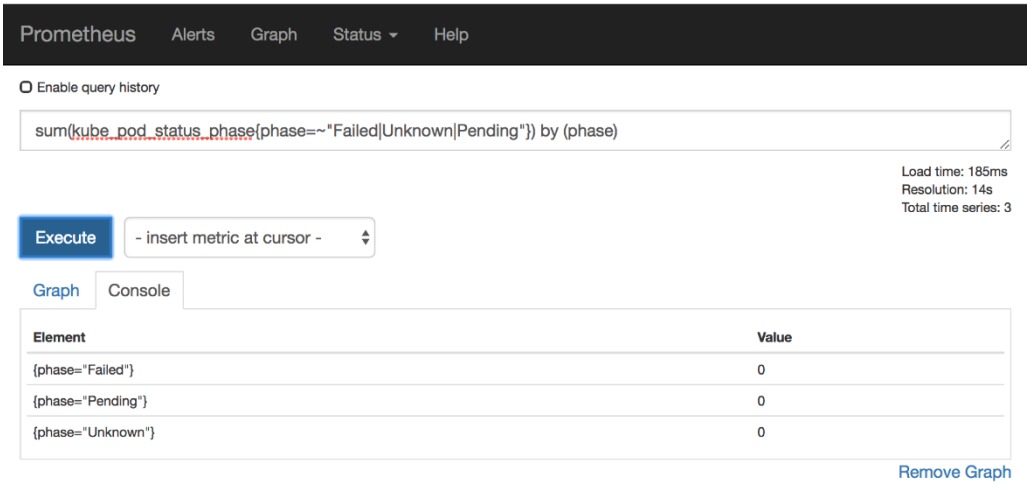
TooMuchCPURequested (0 active)

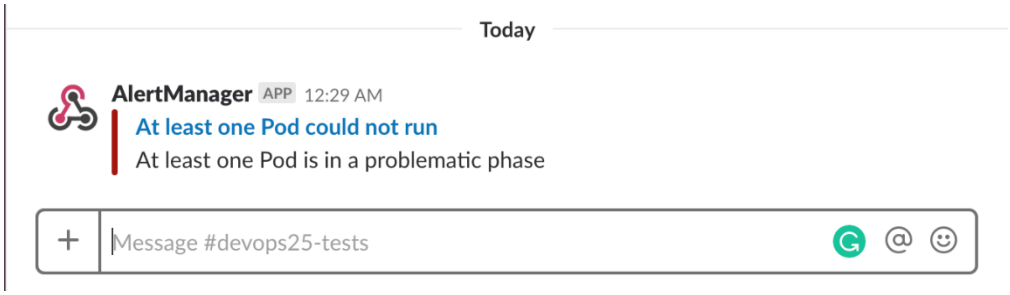
TooMuchMemoryRequested (0 active)

```
alert: TooMuchMemoryRequested
expr: sum(kube_pod_container_resource_requests_memory_bytes)
  / sum(kube_node_status_allocatable_memory_bytes) > 0.9
for: 30m
labels:
  severity: notify
annotations:
  description: More than 90% of allocatable memory is requested
  summary: There's not enough allocatable memory
```


Prometheus
Alerts
Graph
Status
Help
Alerts
Show annotations
TooMuchCPUAndMemory (3 active)
alert: TooMuchCPUAndMemory
expr: (sum
by(instance) (rate(node_cpu_seconds_total{mode!="idle",mode!="iowait",mode!~"^(?:guest.*)$"}[5m]))
/ count by(instance) (node_cpu_seconds_total{mode="system"})) < 0.5 and
(1 - sum by(instance) (node_memory_MemAvailable_bytes) / sum by(instance) (node_memory_MemTotal_by
tes))
< 0.5
for: 30m
labels:
severity: notify
annotations:
description: Less than 50% of CPU and 50% of memory is used on at least one node
summary: Too much unused CPU and memory
Labels
State
Active Since
Value
alertname="TooMuchCPUAndMemory"
instance="10.240.0.6:9100"
severity="notify"
PENDING
2018-10-09
19:44:15.218563345 +0000
UTC
0.027553615303143517
alertname="TooMuchCPUAndMemory"
instance="10.240.0.4:9100"
severity="notify"
PENDING
2018-10-09
19:44:15.218563345 +0000
UTC
0.04563008130081312
alertname="TooMuchCPUAndMemory"
instance="10.240.0.5:9100"
severity="notify"
PENDING
2018-10-09
19:44:15.218563345 +0000
UTC
0.033032752227932095


Prometheus
Alerts
Graph
Status
Help
Enable query history
kube_pod_status_phase
Load time: 232ms
Resolution: 14s
Total time series: 135
Execute
- insert metric at cursor -
Graph
Console
Element
Value
kube_pod_status_phase{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",phase="Failed",pod="go-demo-5-5475479f84-cjqx5",release="prometheus"}
0
kube_pod_status_phase{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",phase="Failed",pod="go-demo-5-5475479f84-lbdxk",release="prometheus"}
0
kube_pod_status_phase{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",phase="Failed",pod="go-demo-5-5475479f84-slr56",release="prometheus"}
0
kube_pod_status_phase{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",phase="Failed",pod="go-demo-5-db-0",release="prometheus"}
0
kube_pod_status_phase{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",phase="Failed",pod="go-demo-5-db-1",release="prometheus"}
0
kube_pod_status_phase{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",phase="Failed",pod="go-demo-5-db-2",release="prometheus"}
0
kube_pod_status_phase{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",phase="Pending",pod="go-demo-5-5475479f84-cjqx5",release="prometheus"}
0


Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(kube_pod_status_phase{phase=~"Failed|Unknown|Pending"}) by (phase)
Load time: 185ms
Resolution: 14s
Total time series: 3
Execute
- insert metric at cursor -
Graph
Console
Element
Value
{phase="Failed"}
0
{phase="Pending"}
0
{phase="Unknown"}
0
Remove Graph



Prometheus Alerts Graph Status Help

Enable query history

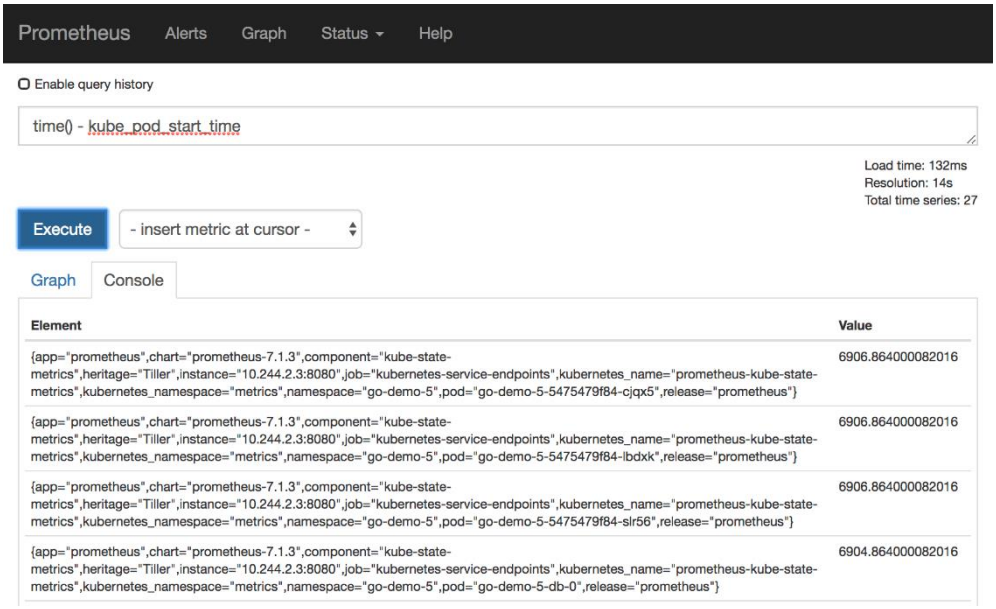
```
kube_pod_start_time
```

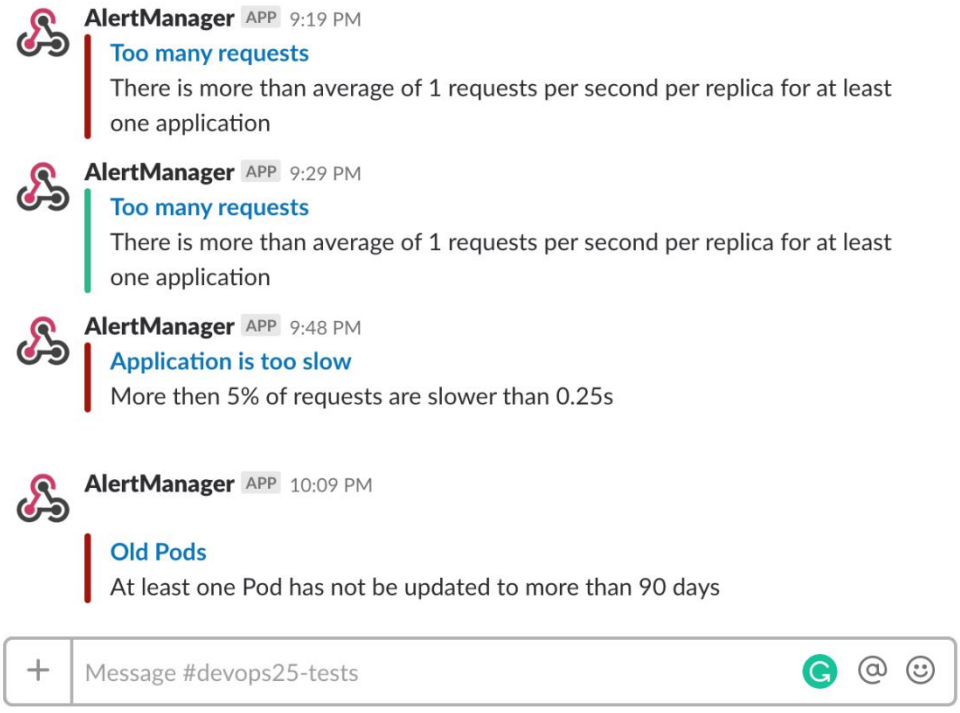
Load time: 148ms
Resolution: 14s
Total time series: 27

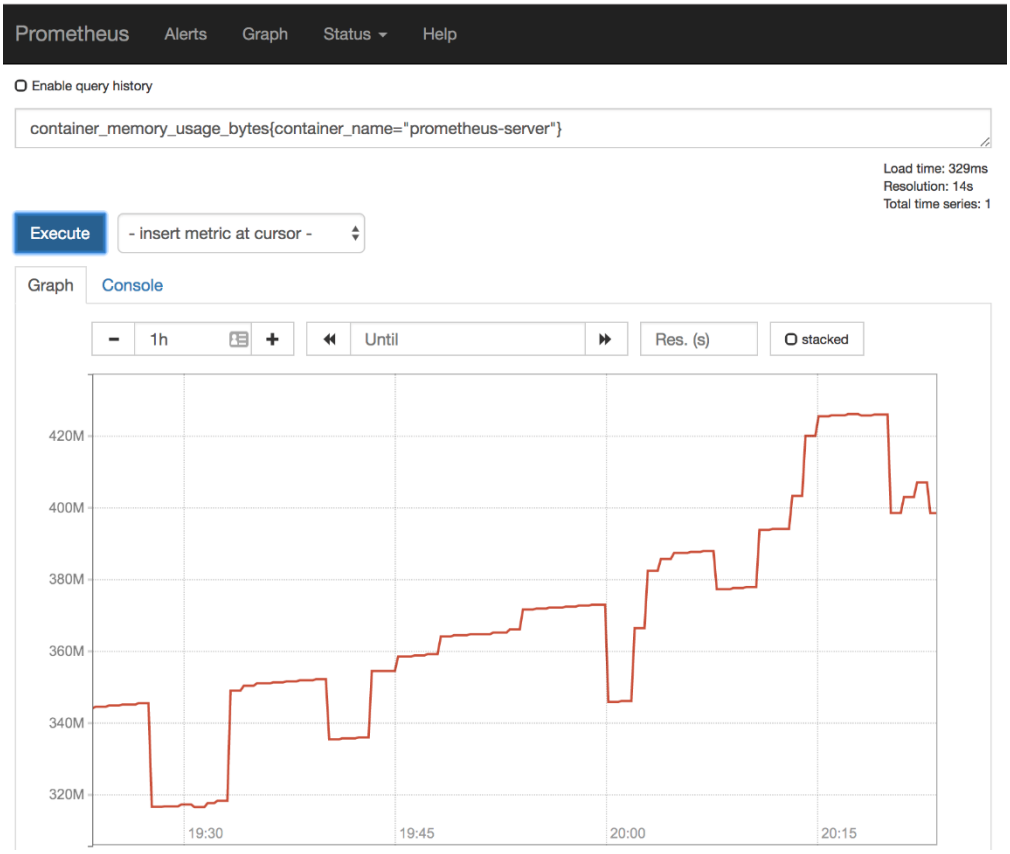
Execute - insert metric at cursor -

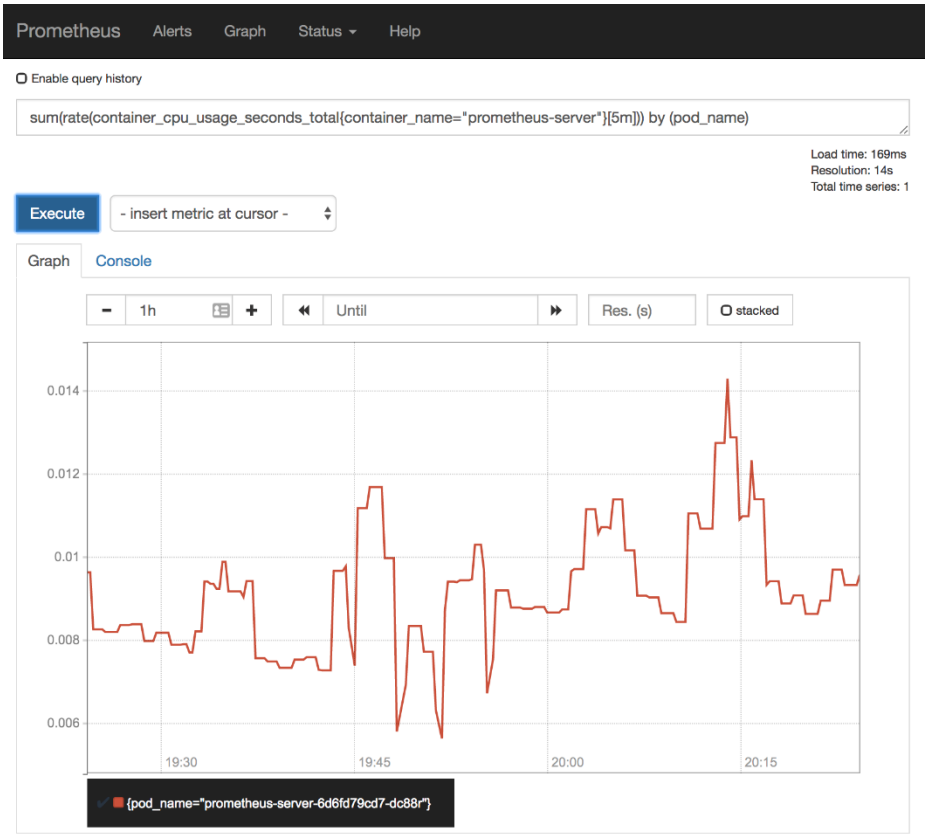
Graph Console

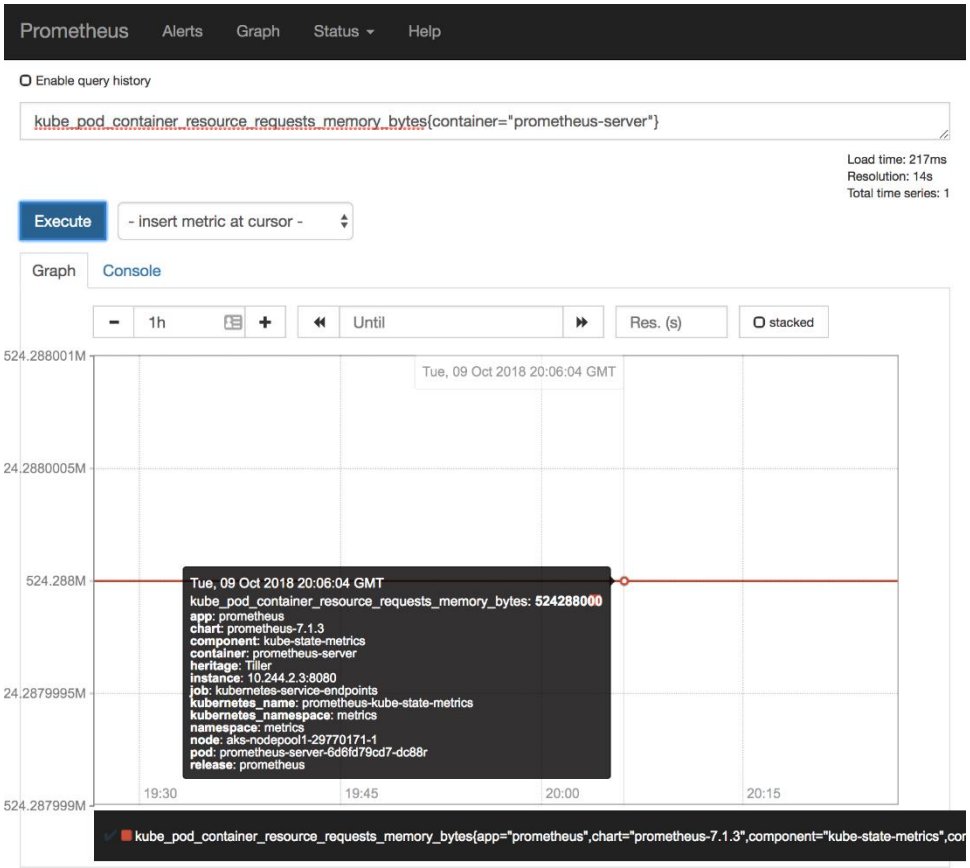
Element	Value
kube_pod_start_time{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",pod="go-demo-5-5475479f84-cjqx5",release="prometheus"}	1539108854
kube_pod_start_time{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",pod="go-demo-5-5475479f84-lbdxk",release="prometheus"}	1539108854
kube_pod_start_time{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",pod="go-demo-5-5475479f84-slr56",release="prometheus"}	1539108854
kube_pod_start_time{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",pod="go-demo-5-db-0",release="prometheus"}	1539108856
kube_pod_start_time{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",pod="go-demo-5-db-1",release="prometheus"}	1539108981
kube_pod_start_time{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",pod="go-demo-5-db-2",release="prometheus"}	1539109116

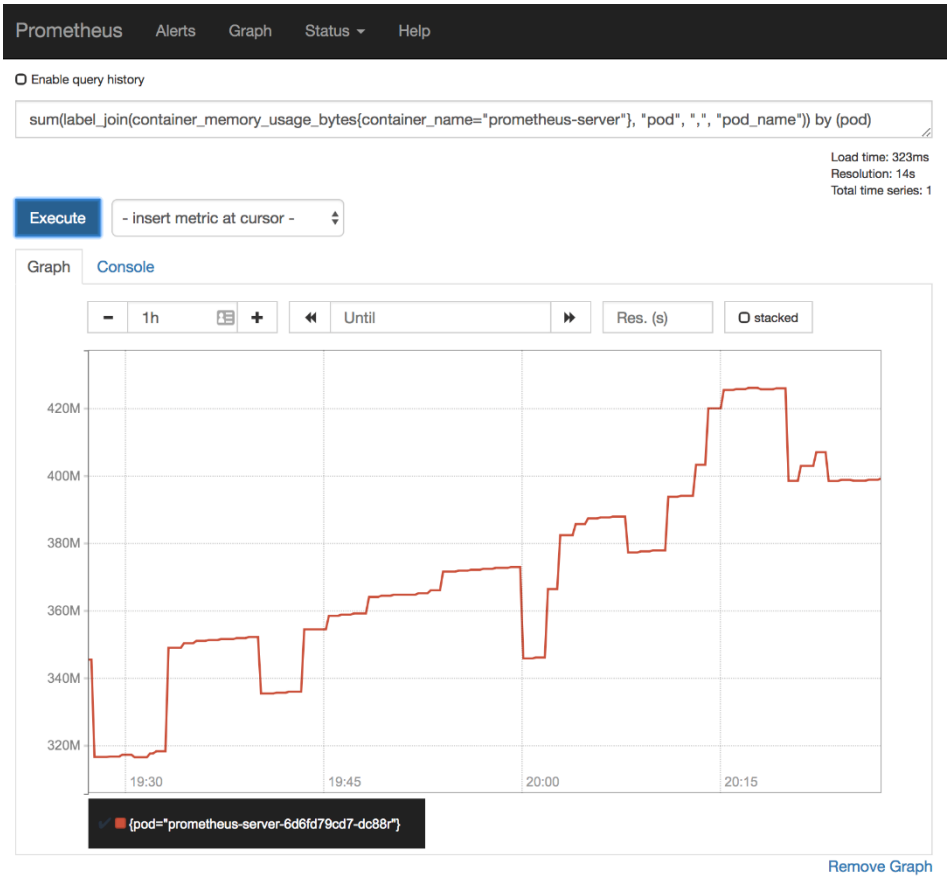

Prometheus
Alerts
Graph
Status
Help
Enable query history
time() - kube_pod_start_time
Load time: 132ms
Resolution: 14s
Total time series: 27
Execute
- insert metric at cursor -
Graph
Console
Element
Value
{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",pod="go-demo-5-5475479f84-cjqx5",release="prometheus"}
6906.864000082016
{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",pod="go-demo-5-5475479f84-lbdxk",release="prometheus"}
6906.864000082016
{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",pod="go-demo-5-5475479f84-slr56",release="prometheus"}
6906.864000082016
{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",heritage="Tiller",instance="10.244.2.3:8080",job="kubernetes-service-endpoints",kubernetes_name="prometheus-kube-state-metrics",kubernetes_namespace="metrics",namespace="go-demo-5",pod="go-demo-5-db-0",release="prometheus"}
6904.864000082016

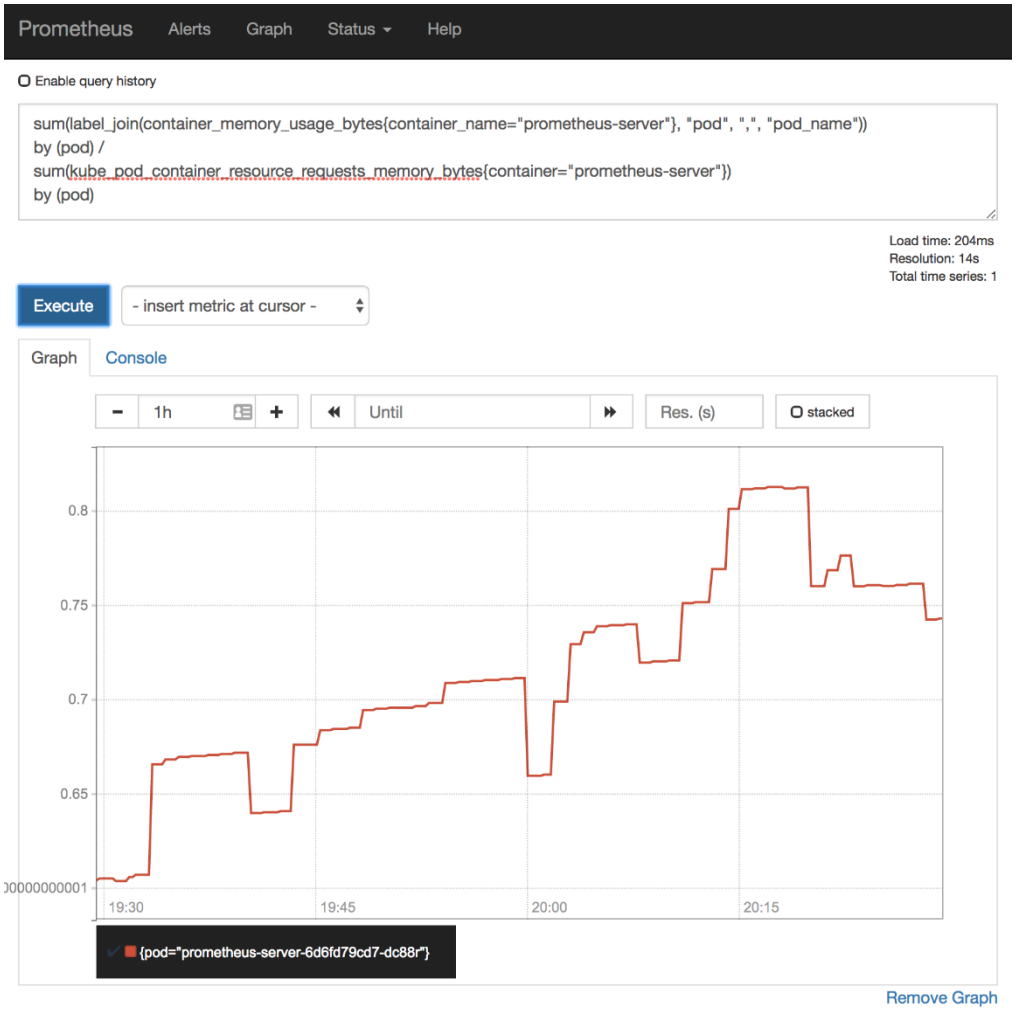

AlertManager APP 9:19 PM
Too many requests
There is more than average of 1 requests per second per replica for at least one application
AlertManager APP 9:29 PM
Too many requests
There is more than average of 1 requests per second per replica for at least one application
AlertManager APP 9:48 PM
Application is too slow
More then 5% of requests are slower than 0.25s
AlertManager APP 10:09 PM
Old Pods
At least one Pod has not be updated to more than 90 days
Message #devops25-tests

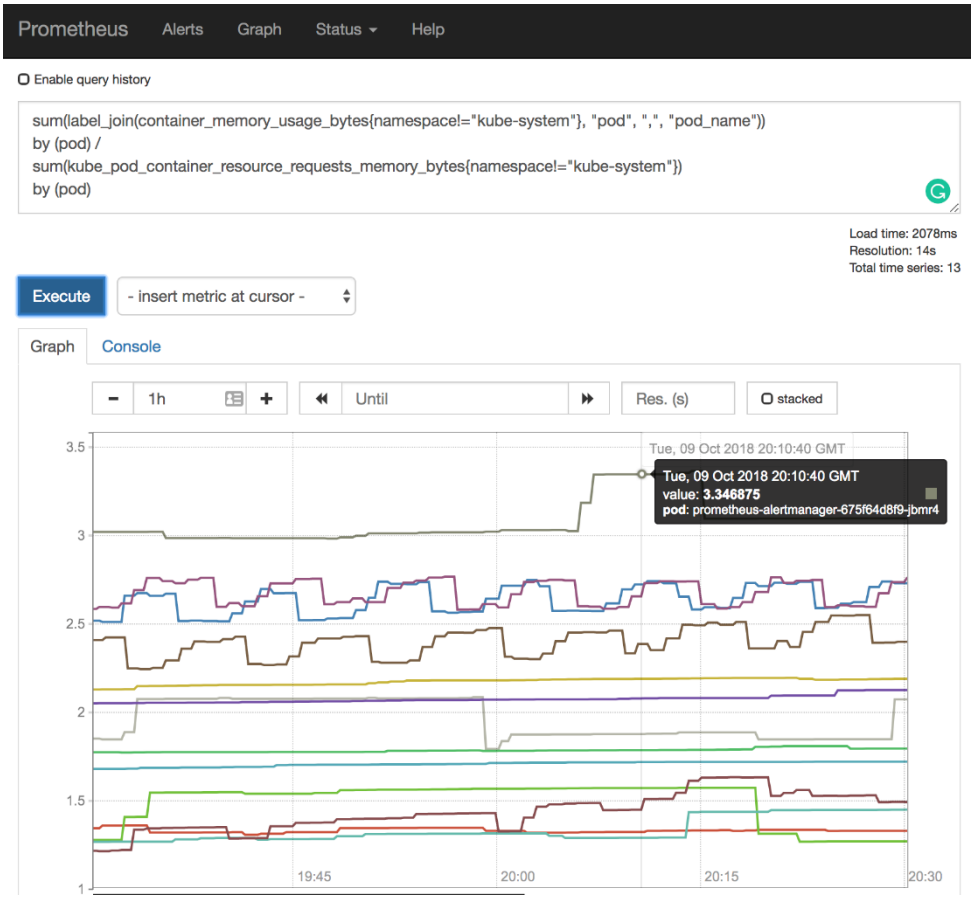

Prometheus
Alerts
Graph
Status
Help
Enable query history
container_memory_usage_bytes{container_name="prometheus-server"}
Load time: 329ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
420M
400M
380M
360M
340M
320M
19:30
19:45
20:00
20:15

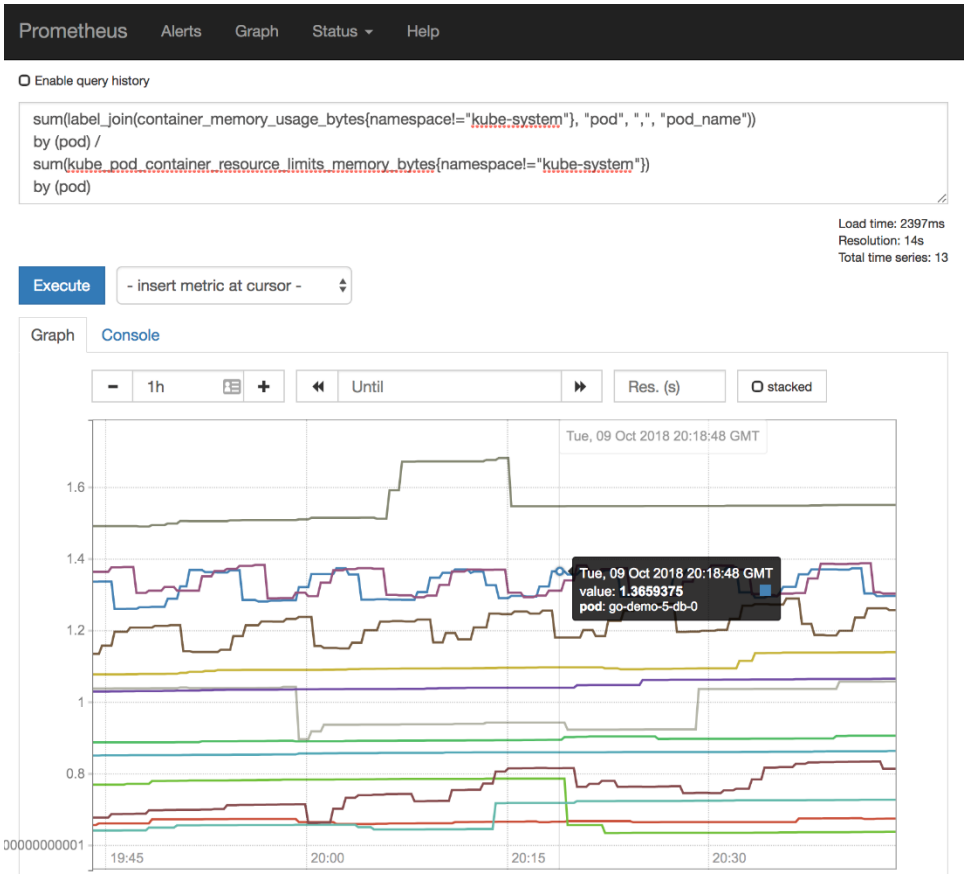

Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(rate(container_cpu_usage_seconds_total{container_name="prometheus-server"}[5m])) by (pod_name)
Load time: 169ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
0.014
0.012
0.01
0.008
0.006
19:30
19:45
20:00
20:15
{pod_name="prometheus-server-6d6fd79cd7-dc88r"}


Prometheus
Alerts
Graph
Status
Help
Enable query history
kube_pod_container_resource_requests_memory_bytes{container="prometheus-server"}
Load time: 217ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
524.288001M
24.2880005M
524.288M
24.2879995M
524.287999M
Tue, 09 Oct 2018 20:06:04 GMT
kube_pod_container_resource_requests_memory_bytes: 524288000
app: prometheus
chart: prometheus-7.1.3
component: kube-state-metrics
container: prometheus-server
heritage: Tiller
instance: 10.244.2.3:8080
job: kubernetes-service-endpoints
kubernetes_name: prometheus-kube-state-metrics
kubernetes_namespace: metrics
namespace: metrics
node: aks-nodepool1-29770171-1
pod: prometheus-server-6d6fd79cd7-dc88r
release: prometheus
19:30
19:45
20:00
20:15
kube_pod_container_resource_requests_memory_bytes{app="prometheus",chart="prometheus-7.1.3",component="kube-state-metrics",cor

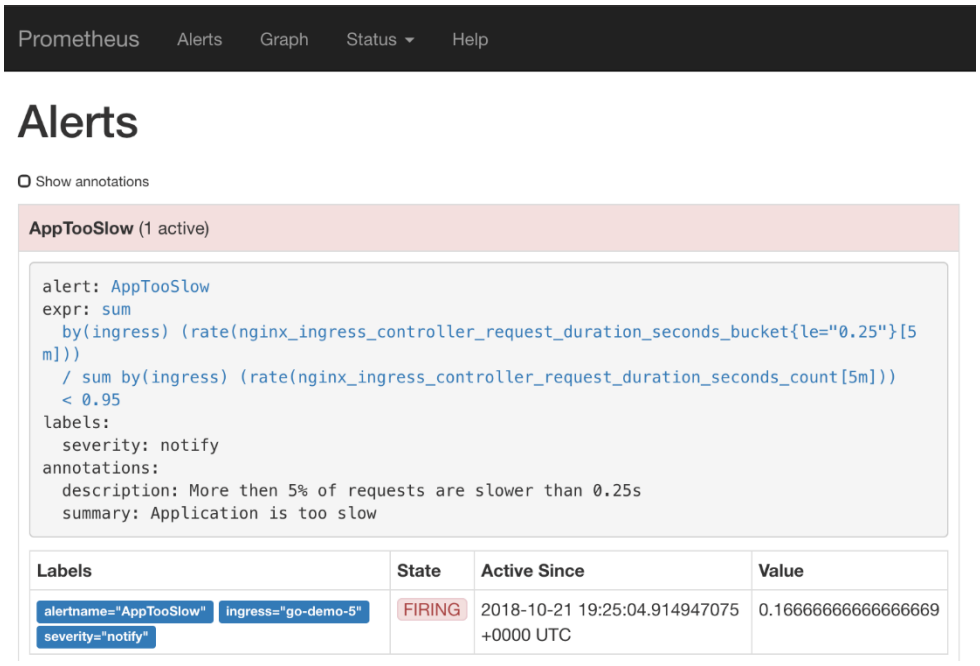

Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(label_join(container_memory_usage_bytes{container_name="prometheus-server"}, "pod", ",", "pod_name")) by (pod)
Load time: 323ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
420M
400M
380M
360M
340M
320M
19:30
19:45
20:00
20:15
{pod="prometheus-server-6d6fd79cd7-dc88r"}
Remove Graph

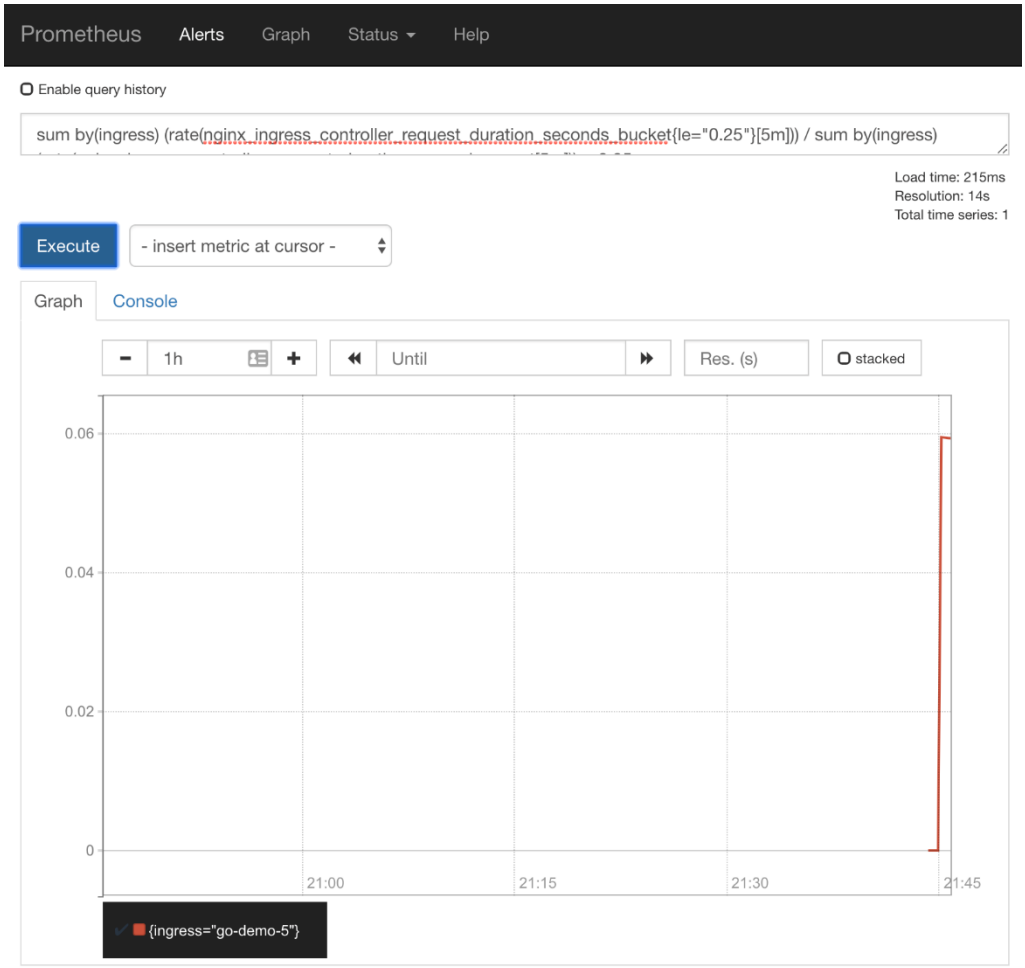

Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(label_join(container_memory_usage_bytes{container_name="prometheus-server"}, "pod", ",", "pod_name"))
by (pod) /
sum(kube_pod_container_resource_requests_memory_bytes{container="prometheus-server"})
by (pod)
Load time: 204ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
0.8
0.75
0.7
0.65
19:30
19:45
20:00
20:15
{pod="prometheus-server-6d6fd79cd7-dc88r"}
Remove Graph


Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(label_join(container_memory_usage_bytes{namespace!="kube-system"}, "pod", ",", "pod_name"))
by (pod) /
sum(kube_pod_container_resource_requests_memory_bytes{namespace!="kube-system"})
by (pod)
Load time: 2078ms
Resolution: 14s
Total time series: 13
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
Tue, 09 Oct 2018 20:10:40 GMT
Tue, 09 Oct 2018 20:10:40 GMT
value: 3.346875
pod: prometheus-alertmanager-675f64d8f9-jbmr4
3.5
3
2.5
2
1.5
1
19:45
20:00
20:15
20:30


Prometheus
Alerts
Graph
Status
Help
Enable query history
sum(label_join(container_memory_usage_bytes{namespace!="kube-system"}, "pod", ",", "pod_name"))
by (pod) /
sum(kube_pod_container_resource_limits_memory_bytes{namespace!="kube-system"})
by (pod)
Load time: 2397ms
Resolution: 14s
Total time series: 13
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
Tue, 09 Oct 2018 20:18:48 GMT
1.6
1.4
1.2
1
0.8
Tue, 09 Oct 2018 20:18:48 GMT
value: 1.3659375
pod: go-demo-5-db-0
19:45
20:00
20:15
20:30

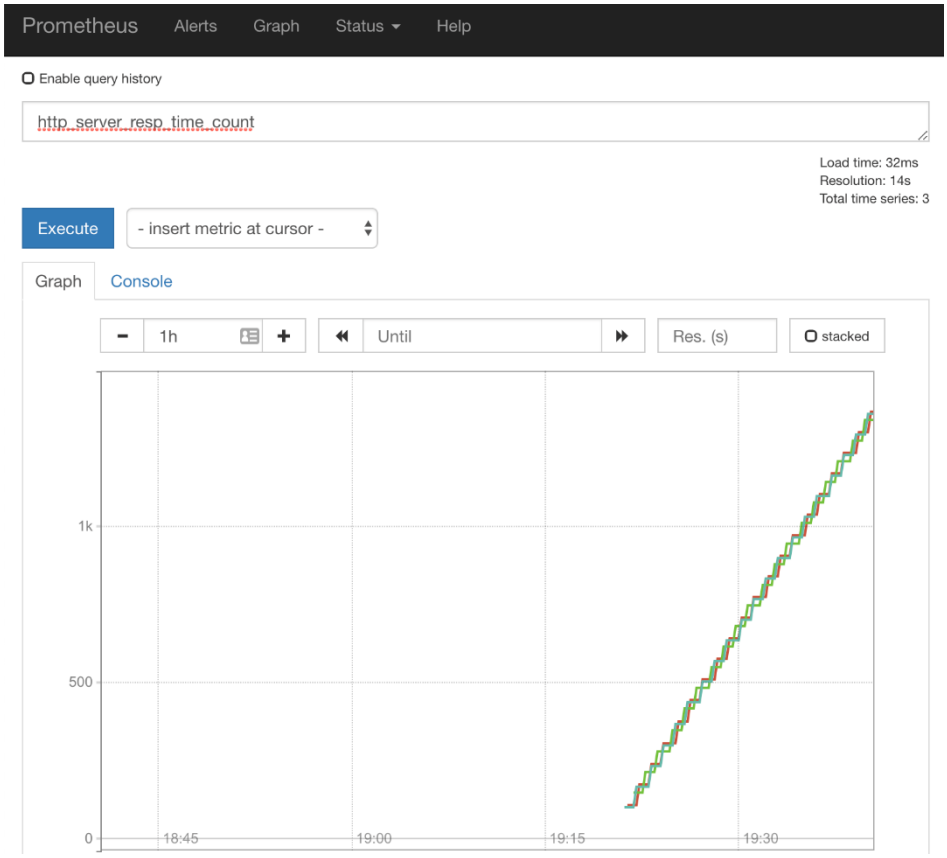
Chapter 4: Debugging Issues Discovered Through Metrics and Alerts

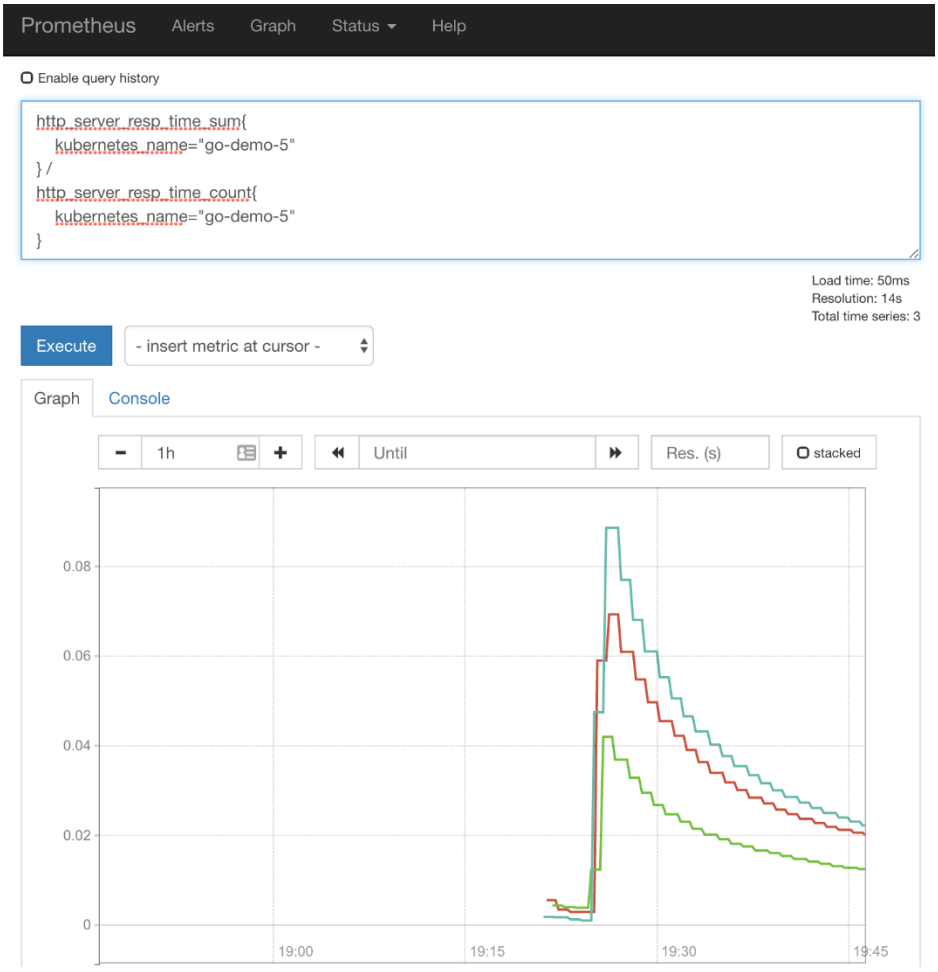



Prometheus
Alerts
Graph
Status
Help
Enable query history
sum by(ingress) (rate(nginx_ingress_controller_request_duration_seconds_bucket{le="0.25"}[5m])) / sum by(ingress)
Load time: 215ms
Resolution: 14s
Total time series: 1
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
0.06
0.04
0.02
0
21:00
21:15
21:30
21:45
{ingress="go-demo-5"}

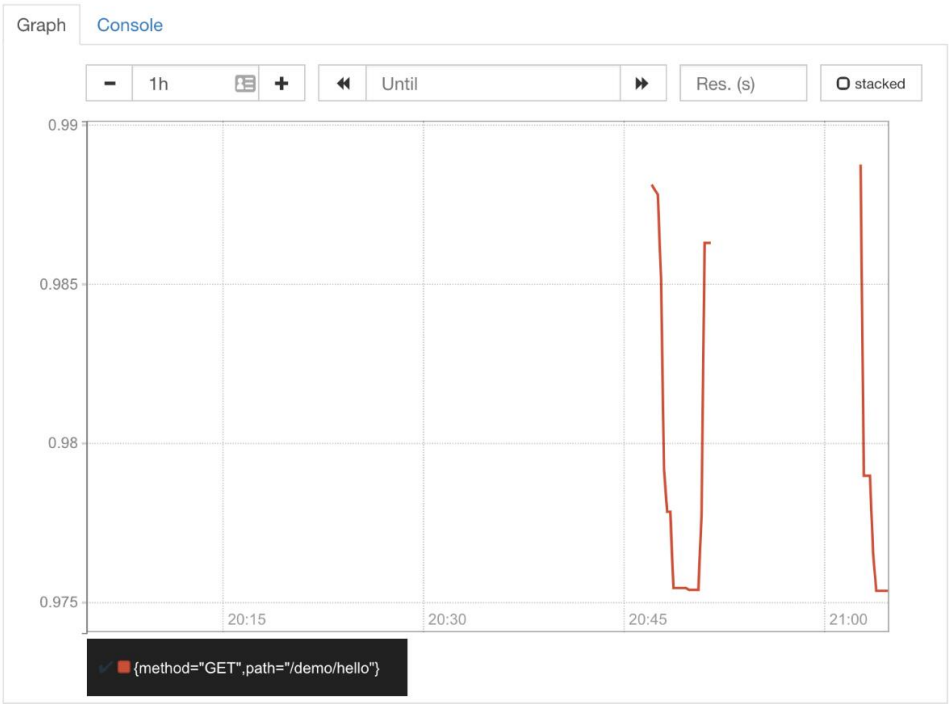
kubernetes-service-endpoints (8/11 up) show less

Endpoint	State	Labels	Last Scrape	Error
http://10.0.2.15:9100/metrics	UP	app="prometheus" chart="prometheus-7.1.3" component="node-exporter" heritage="Tiller" instance="10.0.2.15:9100" kubernetes_name="prometheus-node-exporter" kubernetes_namespace="metrics" release="prometheus"	26.001s ago	
http://172.17.0.12:8080/metrics	UP	app="go-demo-5" chart="go-demo-5-0.0.1" heritage="Tiller" instance="172.17.0.12:8080" kubernetes_name="go-demo-5" kubernetes_namespace="go-demo-5" release="go-demo-5"	21.523s ago	
http://172.17.0.13:8080/metrics	UP	app="go-demo-5" chart="go-demo-5-0.0.1" heritage="Tiller" instance="172.17.0.13:8080" kubernetes_name="go-demo-5" kubernetes_namespace="go-demo-5" release="go-demo-5"	49.894s ago	
http://172.17.0.14:8080/metrics	UP	app="go-demo-5" chart="go-demo-5-0.0.1" heritage="Tiller" instance="172.17.0.14:8080" kubernetes_name="go-demo-5" kubernetes_namespace="go-de	29.902s ago	

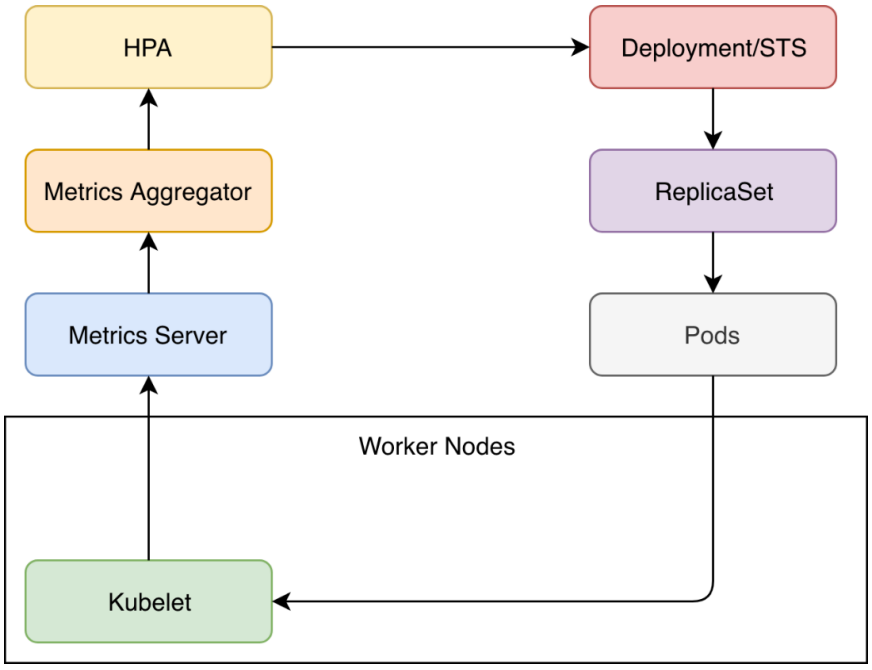

Prometheus
Alerts
Graph
Status
Help
Enable query history
http_server_resp_time_count
Load time: 32ms
Resolution: 14s
Total time series: 3
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
1k
500
0
18:45
19:00
19:15
19:30

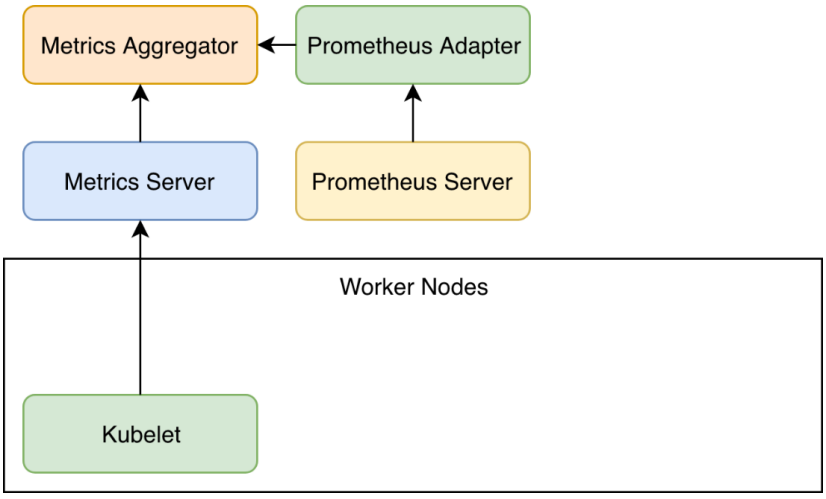

Prometheus
Alerts
Graph
Status
Help
Enable query history
http_server_resp_time_sum{
kubernetes_name="go-demo-5"
} /
http_server_resp_time_count{
kubernetes_name="go-demo-5"
}
Load time: 50ms
Resolution: 14s
Total time series: 3
Execute
- insert metric at cursor -
Graph
Console
1h
Until
Res. (s)
stacked
0.08
0.06
0.04
0.02
0
19:00
19:15
19:30
19:45

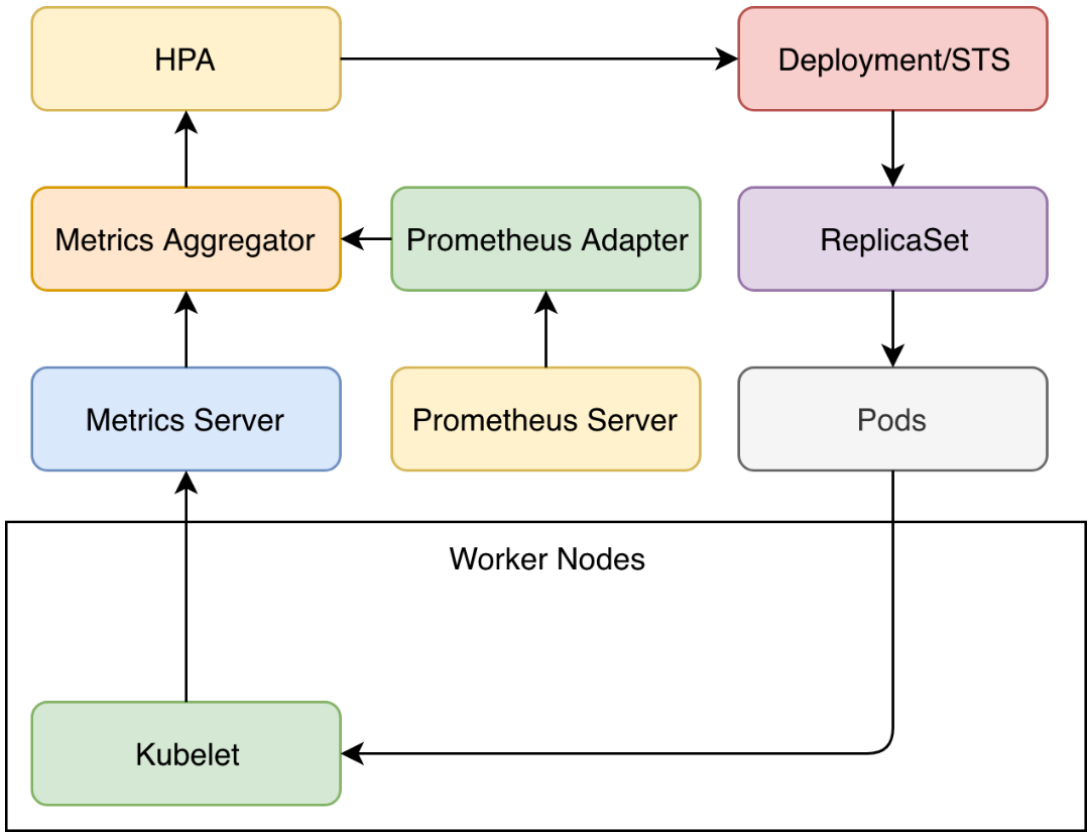

Graph
Console
1h
Until
Res. (s)
stacked
1
0.995
0.99
0.985
0.98
0.975
19:00
19:15
19:30
19:45
{kubernetes_name="go-demo-5"}


Graph
Console
1h
Until
Res. (s)
stacked
0.99
0.985
0.98
0.975
20:15
20:30
20:45
21:00
{method="GET",path="/demo/hello"}

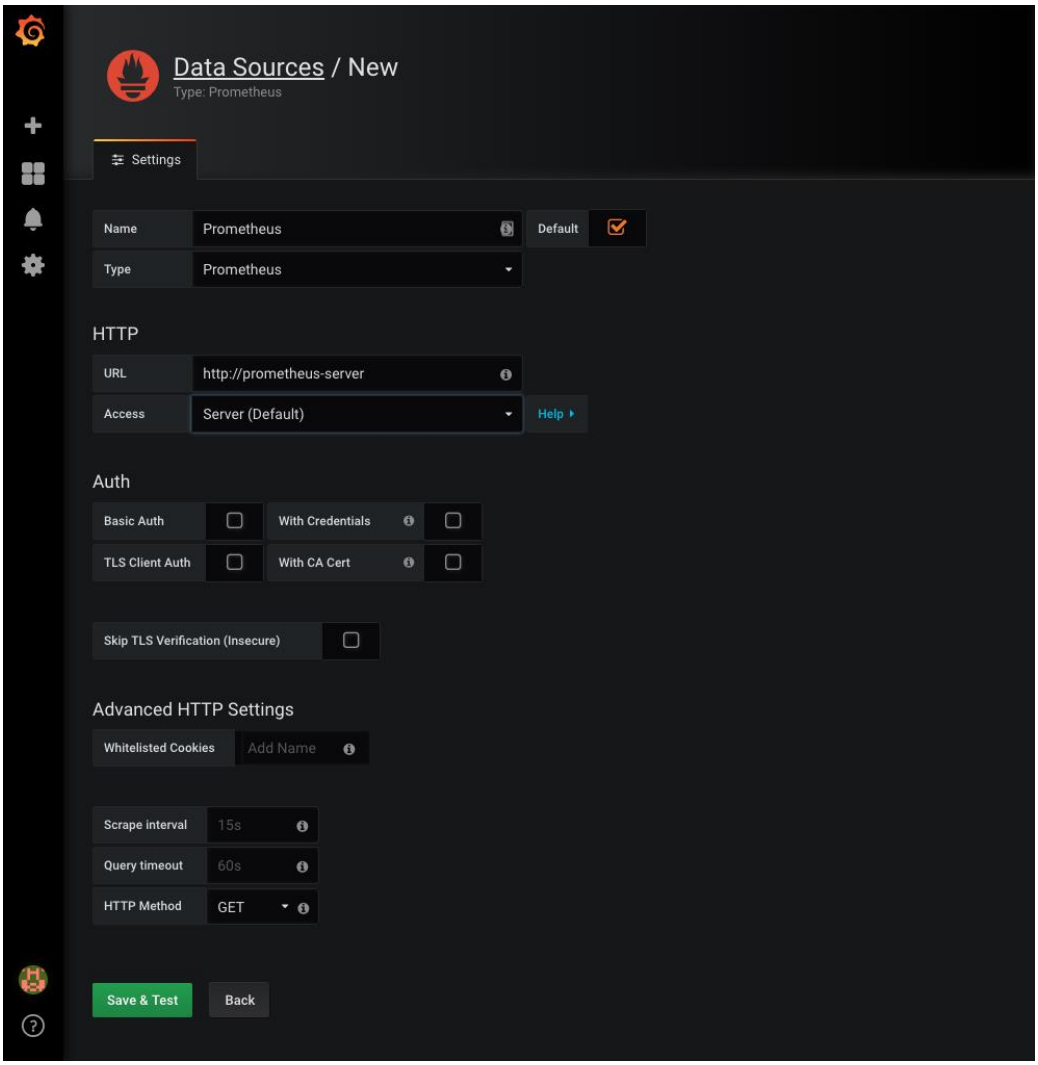
Chapter 5: Extending HorizontalPodAutoscaler with Custom Metrics

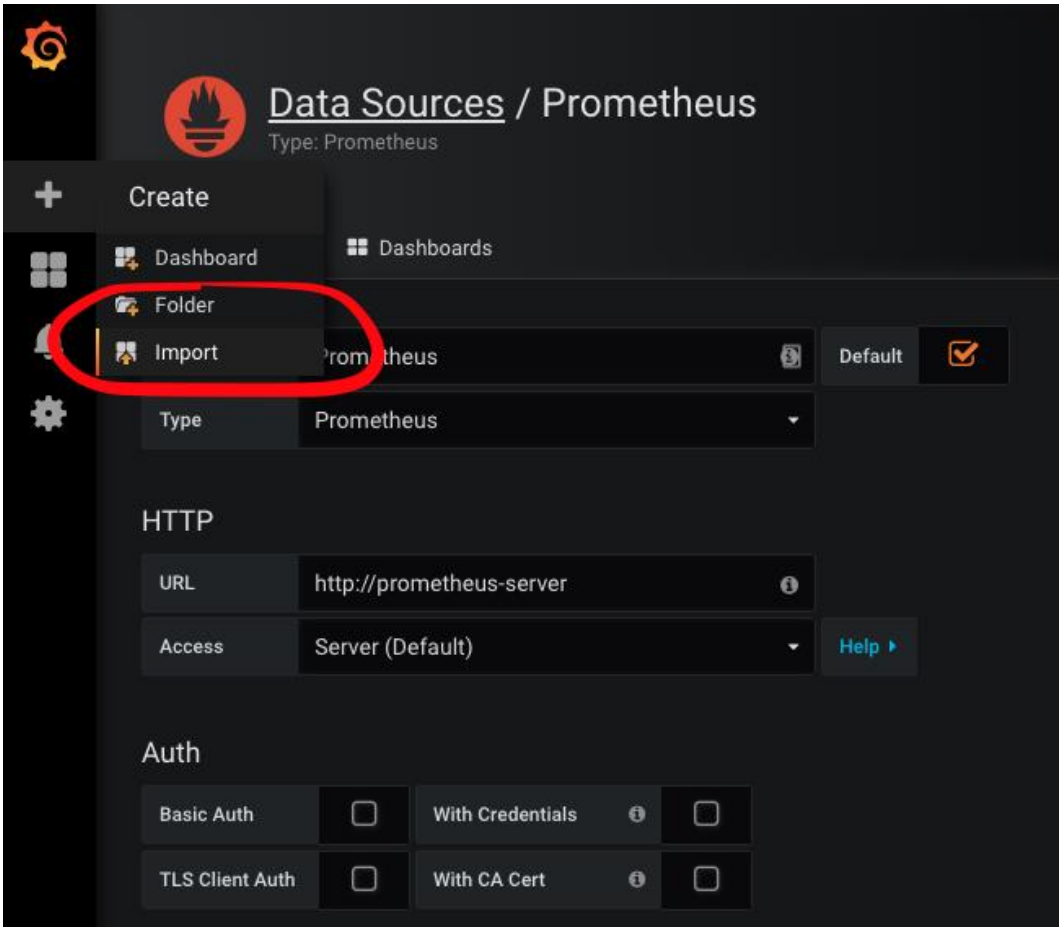


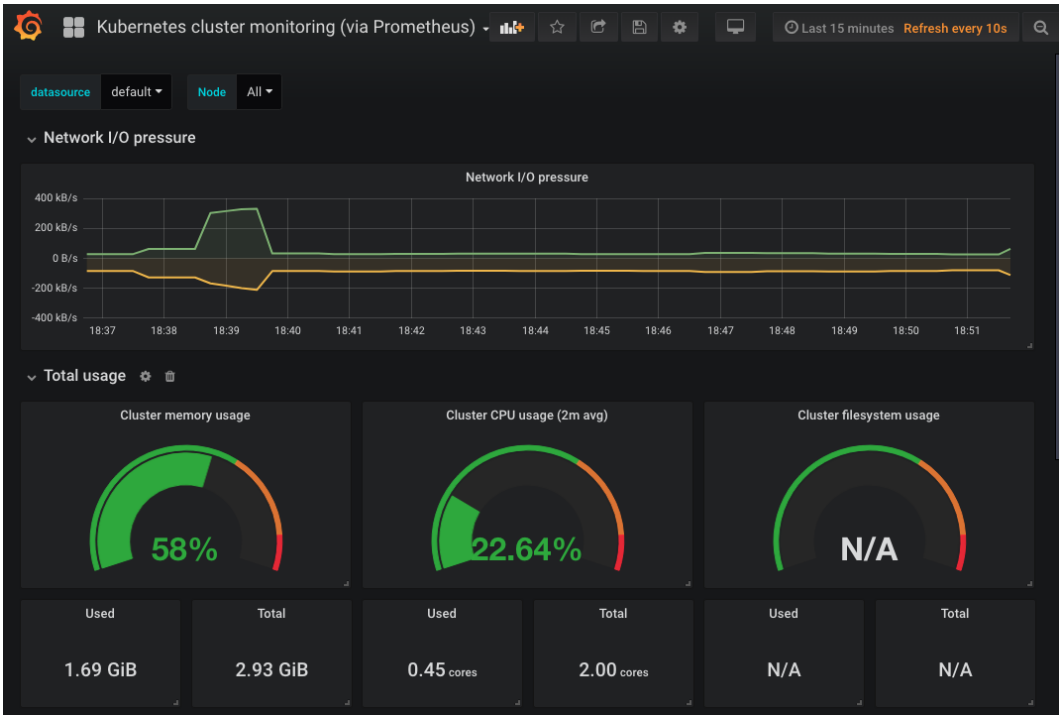


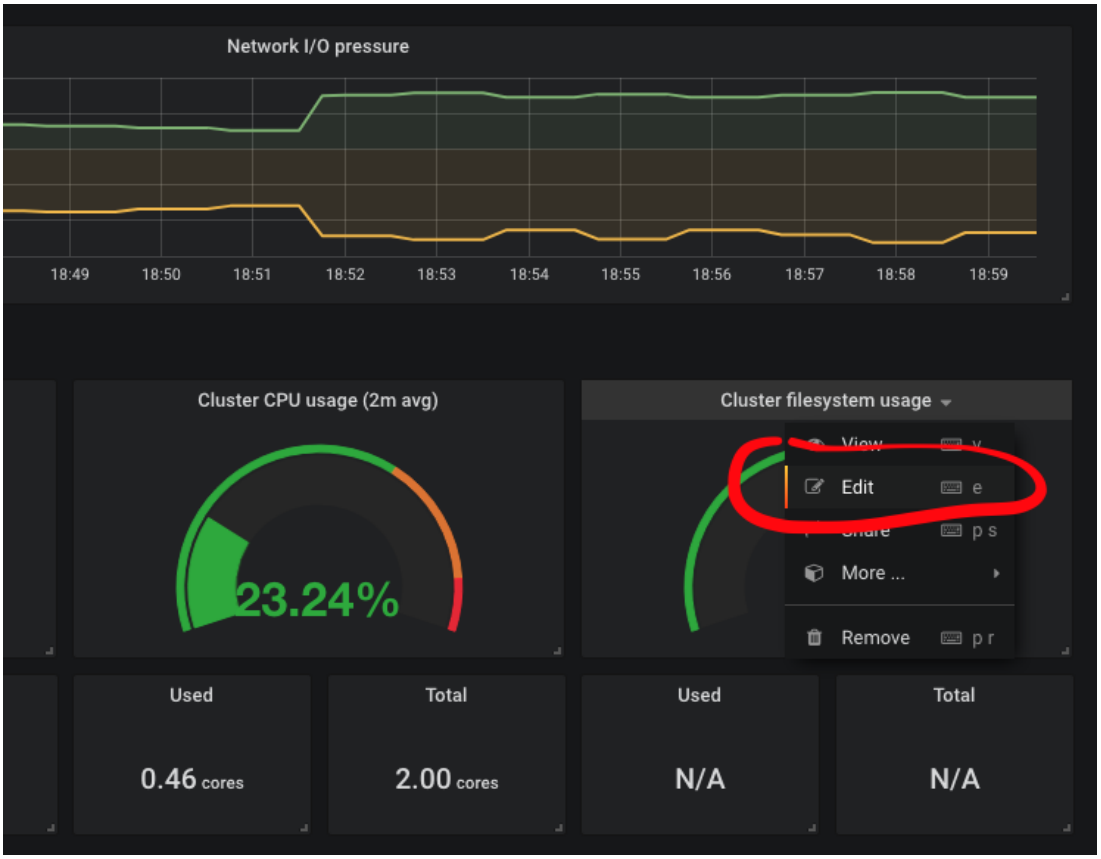

HPA
Deployment/STS
Metrics Aggregator
Prometheus Adapter
ReplicaSet
Metrics Server
Prometheus Server
Pods
Worker Nodes
Kubelet

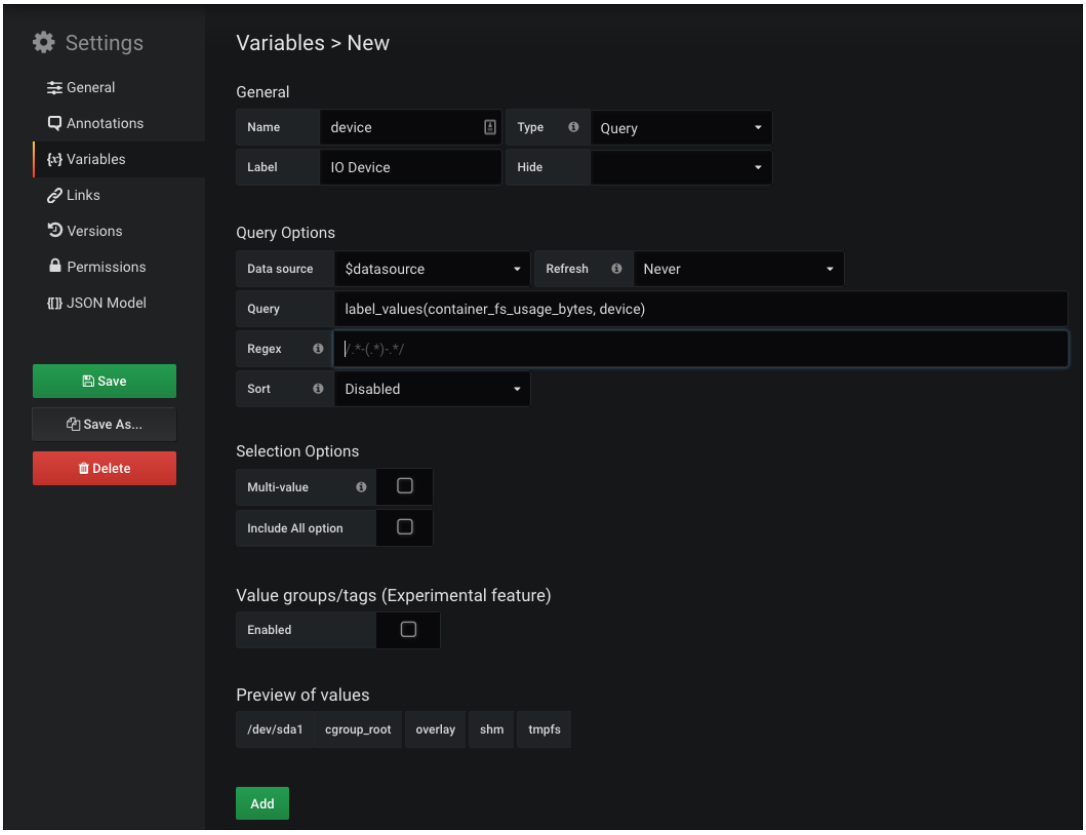
Chapter 6: Visualizing Metrics and Alerts

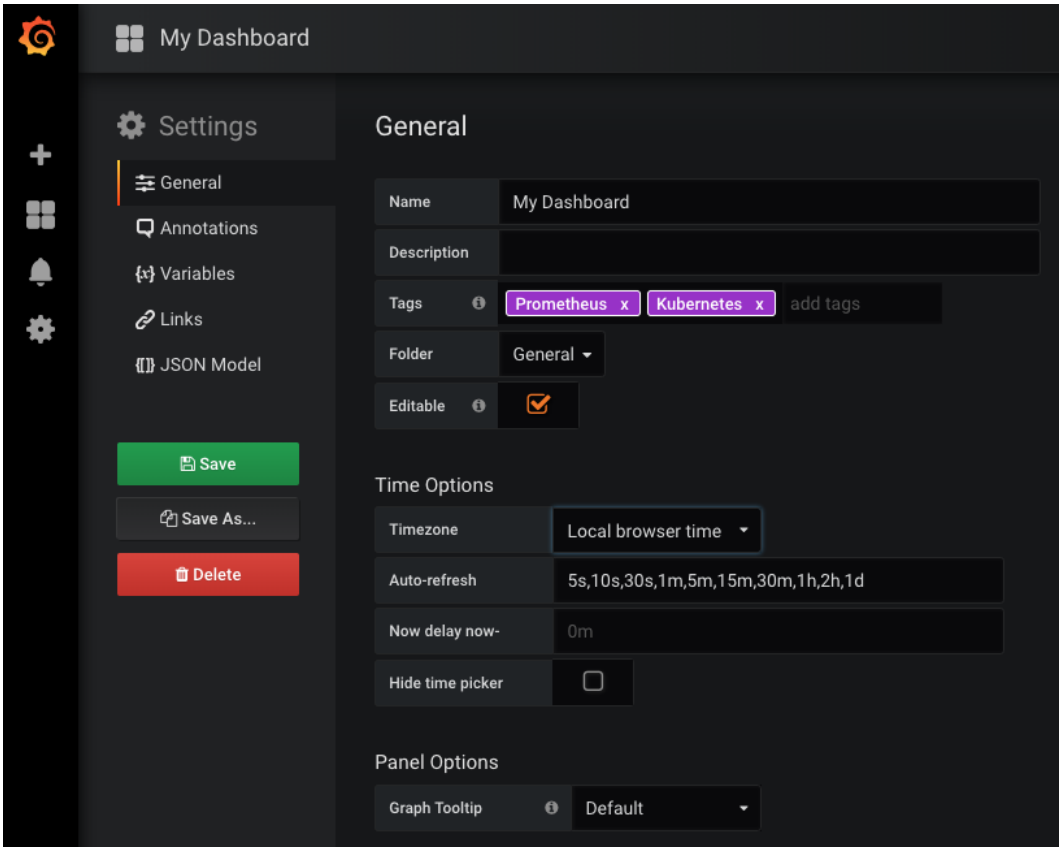


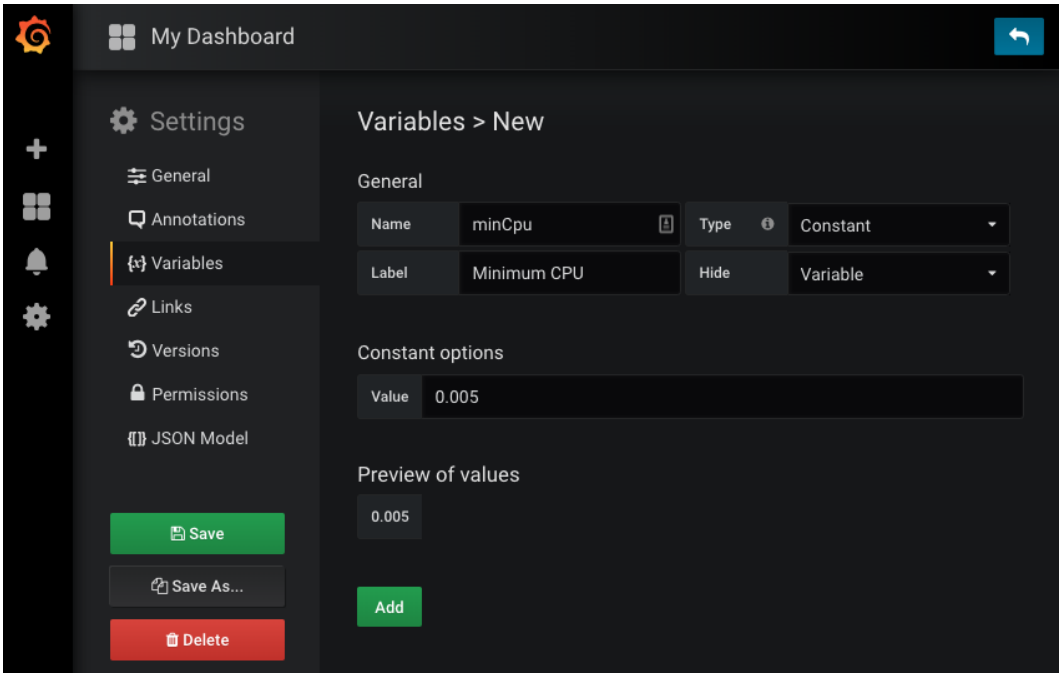

Data Sources / Prometheus
Type: Prometheus
Create
Dashboard
Folder
Import
Dashboards
Default
Type
Prometheus
HTTP
URL
http://prometheus-server
Access
Server (Default)
Help
Auth
Basic Auth
With Credentials
TLS Client Auth
With CA Cert

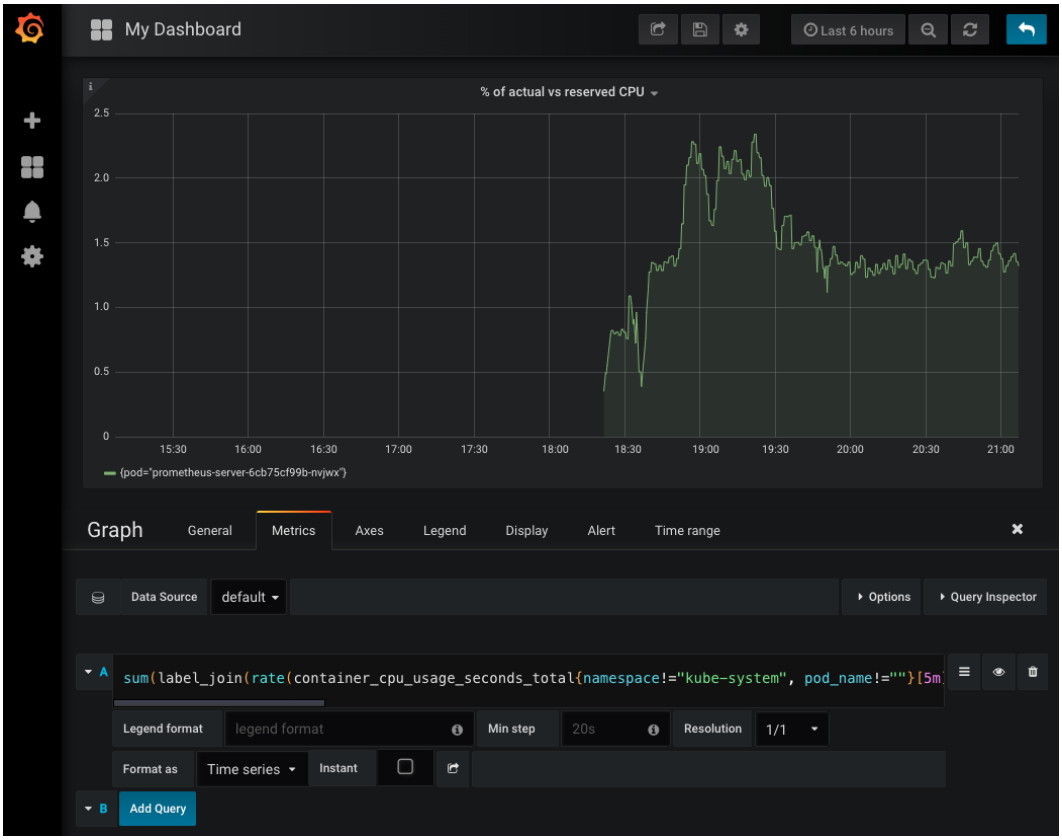

Kubernetes cluster monitoring (via Prometheus)
Last 15 minutes
Refresh every 10s
datasource
default
Node
All
Network I/O pressure
Network I/O pressure
400 kB/s
200 kB/s
0 B/s
-200 kB/s
-400 kB/s
18:37
18:38
18:39
18:40
18:41
18:42
18:43
18:44
18:45
18:46
18:47
18:48
18:49
18:50
18:51
Total usage
Cluster memory usage
58%
Cluster CPU usage (2m avg)
22.64%
Cluster filesystem usage
N/A
Used
1.69 GiB
Total
2.93 GiB
Used
0.45 cores
Total
2.00 cores
Used
N/A
Total
N/A

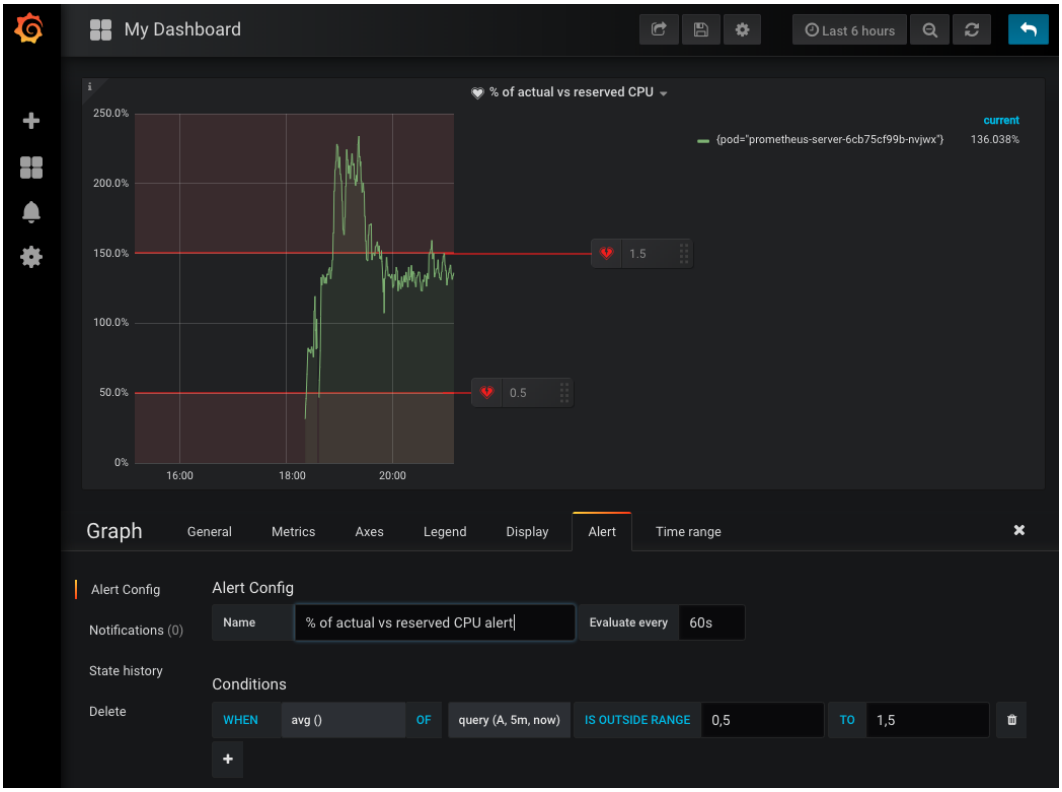

Network I/O pressure
18:49
18:50
18:51
18:52
18:53
18:54
18:55
18:56
18:57
18:58
18:59
Cluster CPU usage (2m avg)
23.24%
Cluster filesystem usage
Edit
e
More ...
Remove
pr
Used
0.46 cores
Total
2.00 cores
Used
N/A
Total
N/A

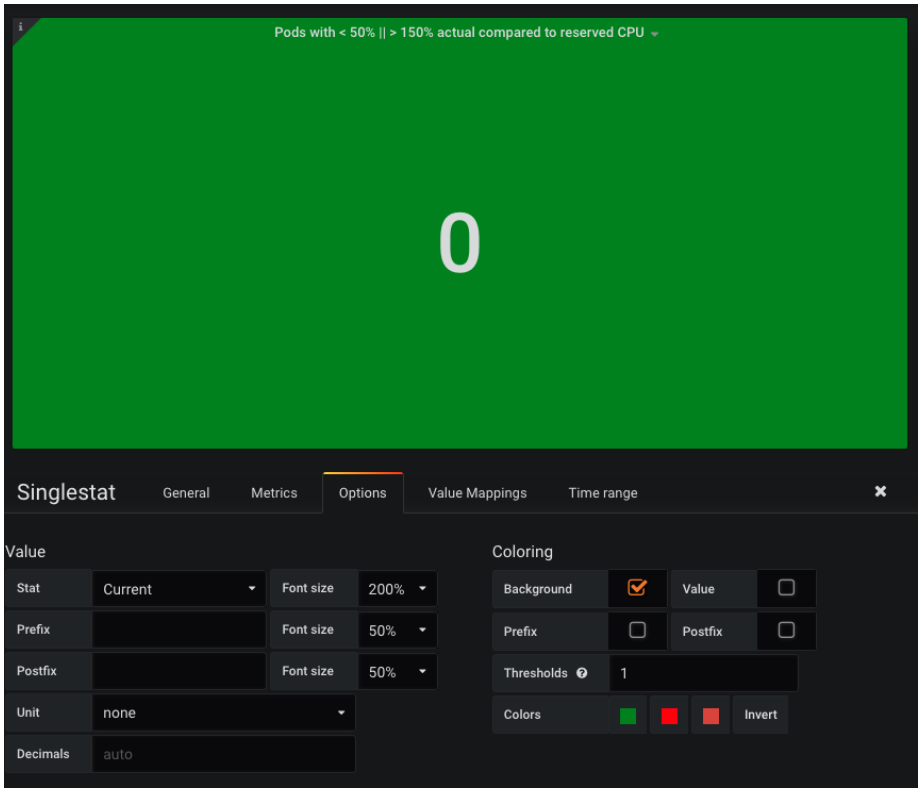

Settings
General
Annotations
Variables
Links
Versions
Permissions
JSON Model
Save
Save As...
Delete
Variables > New
General
Name
device
Type
Query
Label
IO Device
Hide
Query Options
Data source
$datasource
Refresh
Never
Query
label_values(container_fs_usage_bytes, device)
Regex
/.*-(.*)-.*/
Sort
Disabled
Selection Options
Multi-value
Include All option
Value groups/tags (Experimental feature)
Enabled
Preview of values
/dev/sda1
cgroup_root
overlay
shm
tmpfs
Add


My Dashboard
Settings
General
Annotations
Variables
Links
JSON Model
Save
Save As...
Delete
General
Name
My Dashboard
Description
Tags
Prometheus x
Kubernetes x
add tags
Folder
General
Editable
Time Options
Timezone
Local browser time
Auto-refresh
5s,10s,30s,1m,5m,15m,30m,1h,2h,1d
Now delay now-
0m
Hide time picker
Panel Options
Graph Tooltip
Default

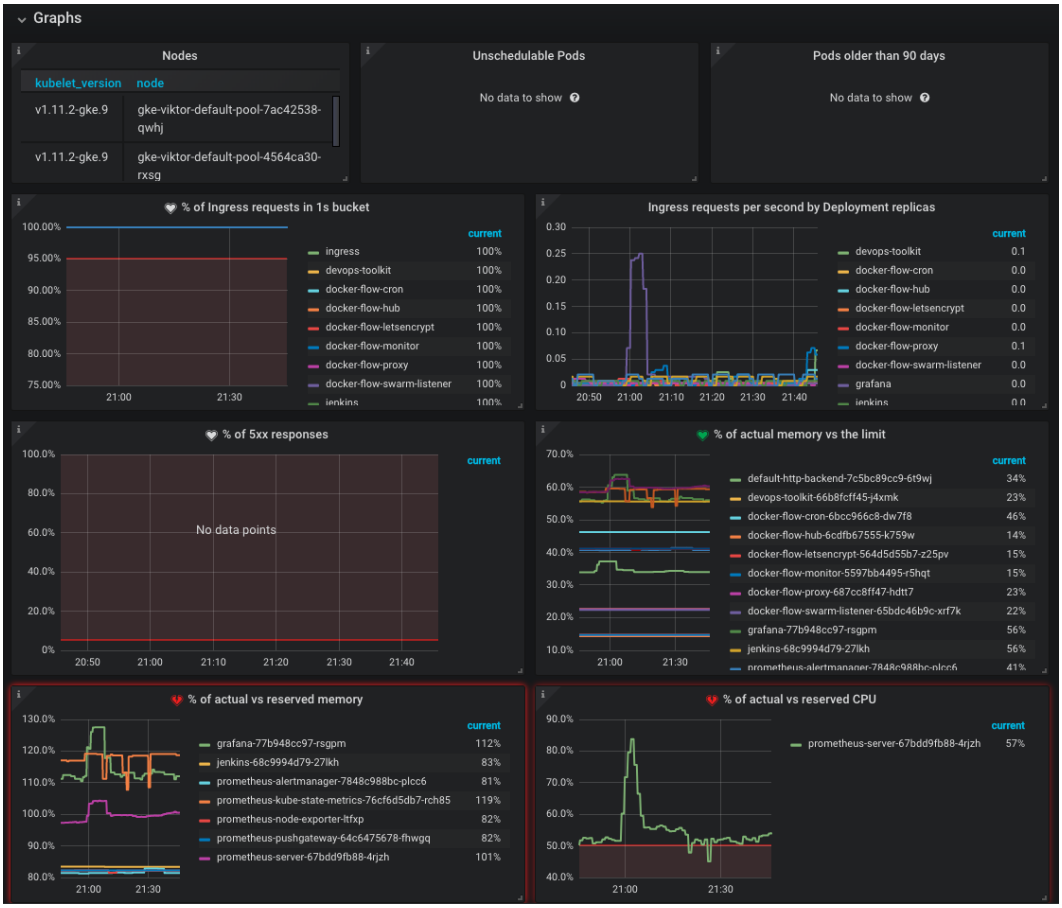

My Dashboard
Settings
General
Annotations
Variables
Links
Versions
Permissions
JSON Model
Save
Save As...
Delete
Variables > New
General
Name
minCpu
Type
Constant
Label
Minimum CPU
Hide
Variable
Constant options
Value
0.005
Preview of values
0.005
Add


My Dashboard
Last 6 hours
% of actual vs reserved CPU
2.5
2.0
1.5
1.0
0.5
0
15:30
16:00
16:30
17:00
17:30
18:00
18:30
19:00
19:30
20:00
20:30
21:00
{pod="prometheus-server-6cb75cf99b-nvjwx"}
Graph
General
Metrics
Axes
Legend
Display
Alert
Time range
Data Source
default
Options
Query Inspector
A
sum(label_join(rate(container_cpu_usage_seconds_total{namespace!="kube-system", pod_name!=""}[5m
Legend format
legend format
Min step
20s
Resolution
1/1
Format as
Time series
Instant
B
Add Query

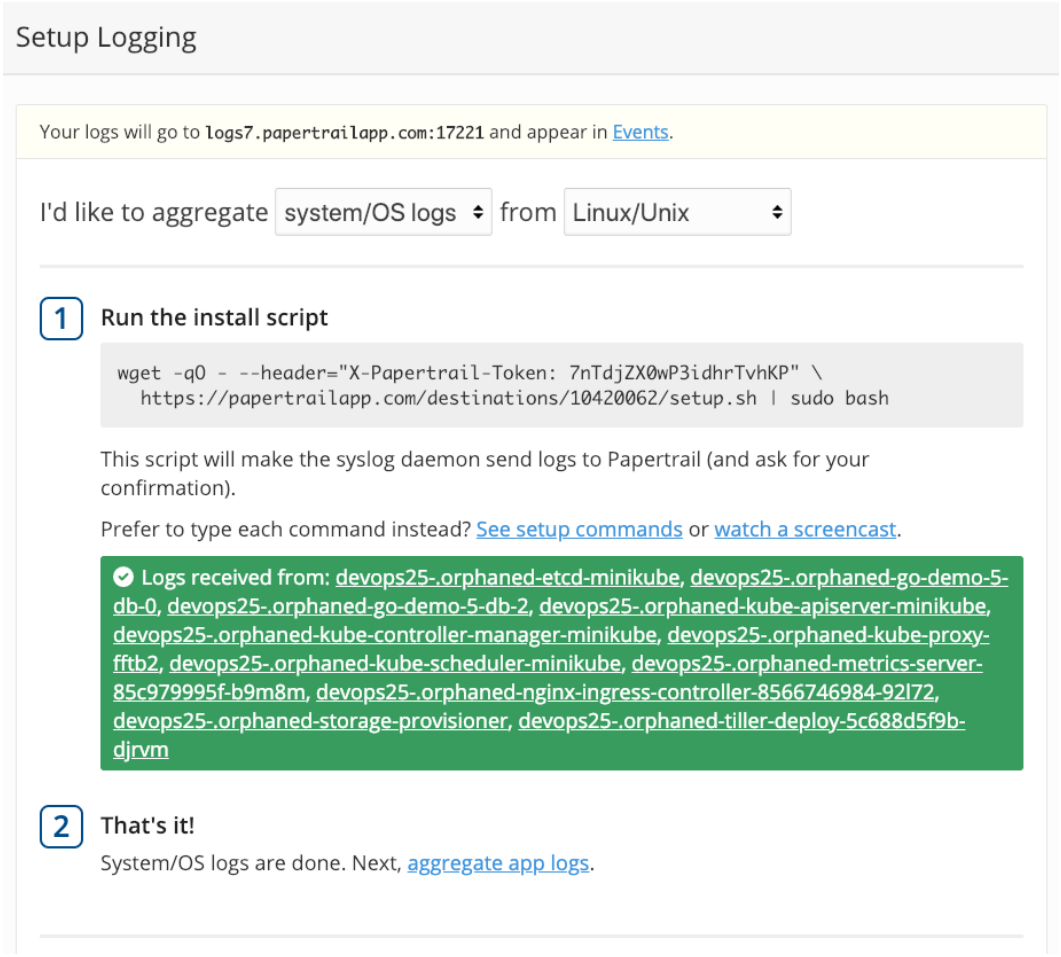

My Dashboard
Last 6 hours
% of actual vs reserved CPU
current
{pod="prometheus-server-6cb75cf99b-nvjwx"}
136.038%
250.0%
200.0%
150.0%
100.0%
50.0%
0%
1.5
0.5
16:00
18:00
20:00
Graph
General
Metrics
Axes
Legend
Display
Alert
Time range
Alert Config
Notifications (0)
State history
Delete
Alert Config
Name
% of actual vs reserved CPU alert
Evaluate every
60s
Conditions
WHEN
avg ()
OF
query (A, 5m, now)
IS OUTSIDE RANGE
0,5
TO
1,5

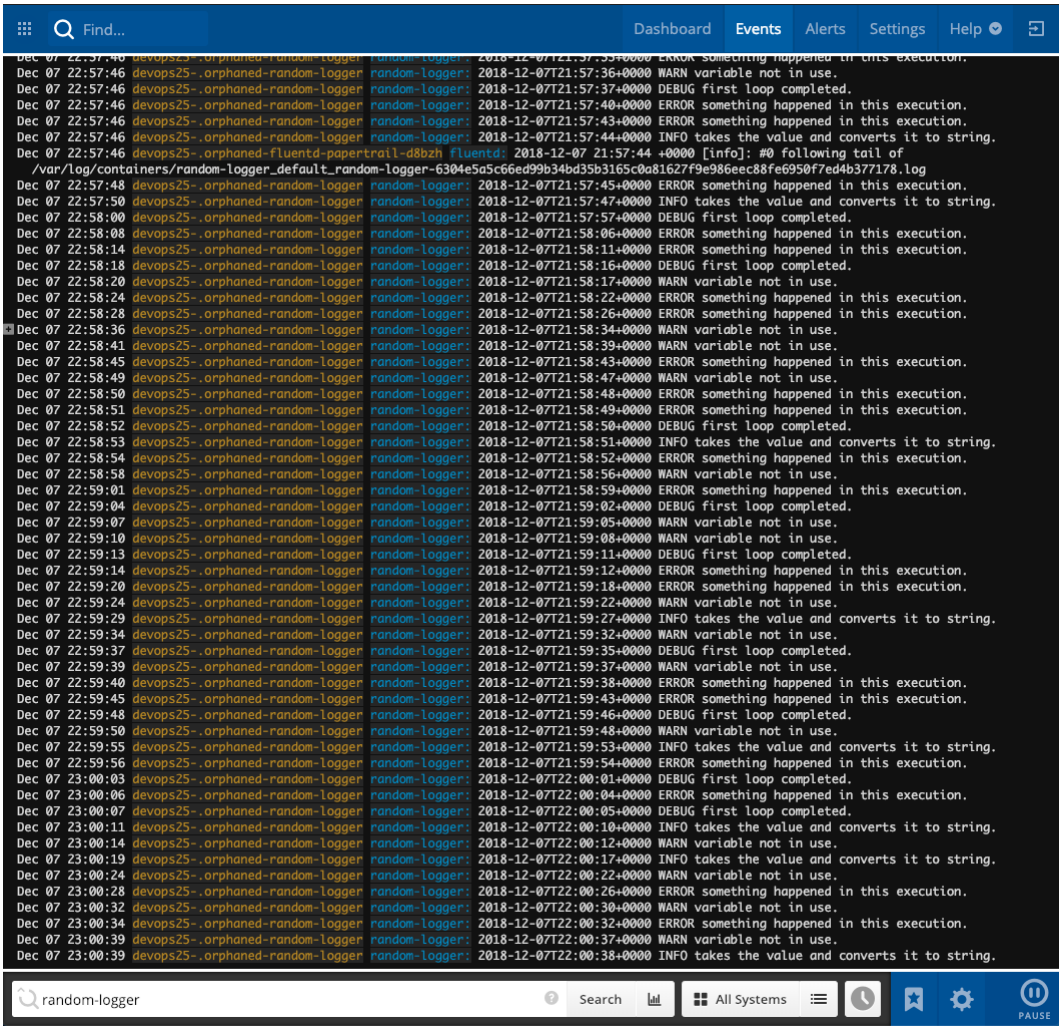

Pods with < 50% || > 150% actual compared to reserved CPU
0
Singlestat
General
Metrics
Options
Value Mappings
Time range
Value
Stat
Current
Font size
200%
Prefix
Font size
50%
Postfix
Font size
50%
Unit
none
Decimals
auto
Coloring
Background
Value
Prefix
Postfix
Thresholds
1
Colors
Invert

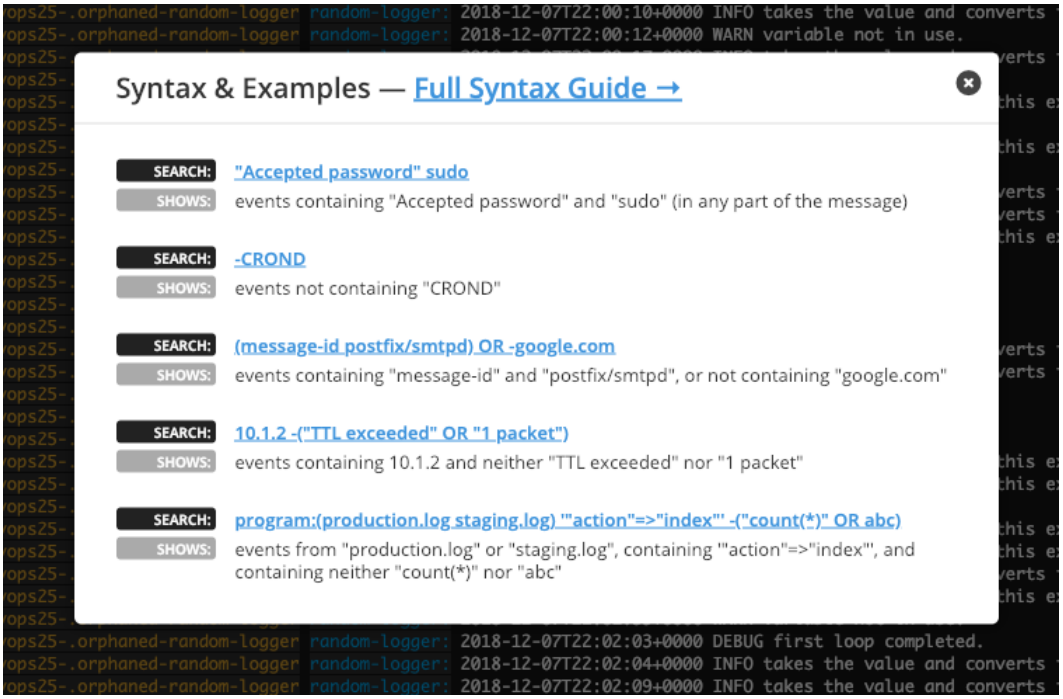

Alerts
Nodes
1
Unschedulable Pods
0
Pods older than 90 days
0
Ingresses with requests in 1 bucket below 95%
N/A
Ingresses with average > 1 req per sec
0
Ingresses with > 5% of 5xx responses
0
Pods with > 80% usage of mem limit
0
Pods with < 50% || > 150% actual compared to reserved mem
2
Pods with < 50% || > 150% actual compared to reserved CPU
1
Graphs
(9 panels)

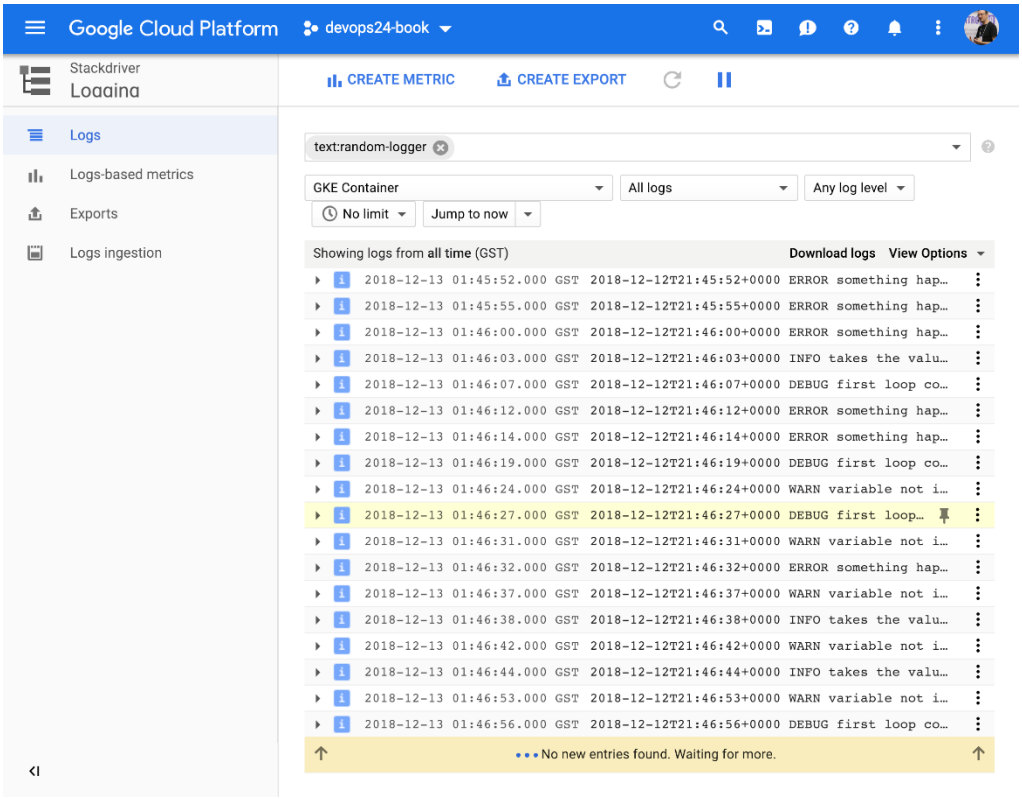

Graphs
Nodes
kubelet_version node
v1.11.2-gke.9 gke-viktor-default-pool-7ac42538-qwhj
v1.11.2-gke.9 gke-viktor-default-pool-4564ca30-rxsg
Unschedulable Pods
No data to show
Pods older than 90 days
No data to show
% of Ingress requests in 1s bucket
current
ingress 100%
devops-toolkit 100%
docker-flow-cron 100%
docker-flow-hub 100%
docker-flow-letsencrypt 100%
docker-flow-monitor 100%
docker-flow-proxy 100%
docker-flow-swarm-listener 100%
Ingress requests per second by Deployment replicas
current
devops-toolkit 0.1
docker-flow-cron 0.0
docker-flow-hub 0.0
docker-flow-letsencrypt 0.0
docker-flow-monitor 0.0
docker-flow-proxy 0.1
docker-flow-swarm-listener 0.0
grafana 0.0
% of 5xx responses
No data points
% of actual memory vs the limit
current
default-http-backend-7c5bc89cc9-6t9wj 34%
devops-toolkit-66b8fcff45-j4xmk 23%
docker-flow-cron-6bcc966c8-dw7f8 46%
docker-flow-hub-6cdfb67555-k759w 14%
docker-flow-letsencrypt-564d5d55b7-z25pv 15%
docker-flow-monitor-5597bb4495-r5hqt 15%
docker-flow-proxy-687cc8ff47-hdtt7 23%
docker-flow-swarm-listener-65bdc46b9c-xrf7k 22%
grafana-77b948cc97-rsgpm 56%
jenkins-68c9994d79-27lkh 56%
% of actual vs reserved memory
current
grafana-77b948cc97-rsgpm 112%
jenkins-68c9994d79-27lkh 83%
prometheus-alertmanager-7848c988bc-plcc6 81%
prometheus-kube-state-metrics-76cf6d5db7-rch85 119%
prometheus-node-exporter-ltfxp 82%
prometheus-pushgateway-64c6475678-fhwgq 82%
prometheus-server-67bdd9fb88-4rjzh 101%
% of actual vs reserved CPU
current
prometheus-server-67bdd9fb88-4rjzh 57%

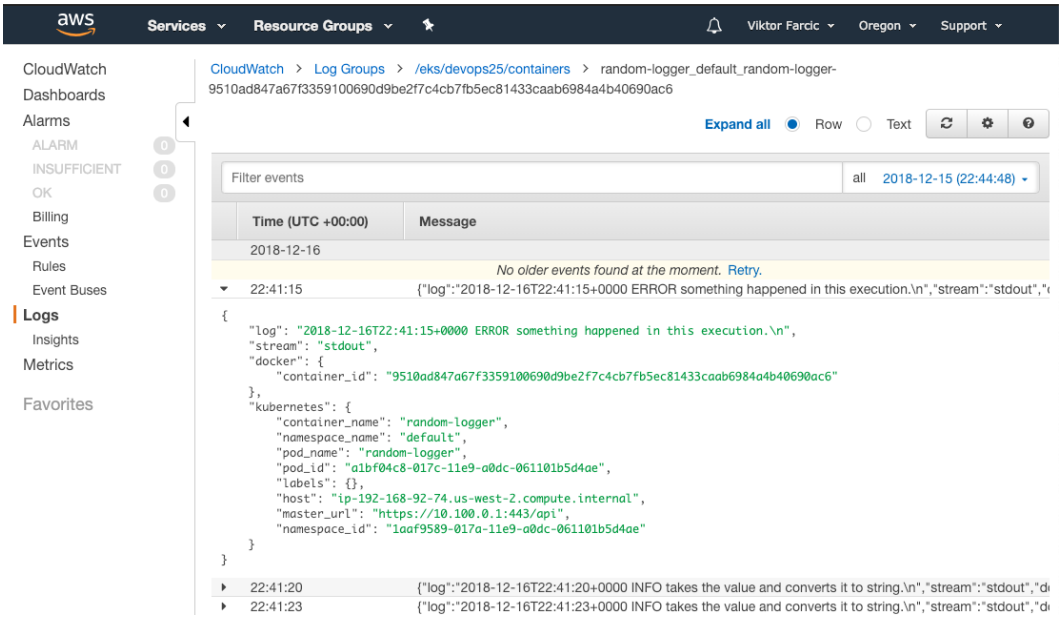
Chapter 7: Collecting and Querying Logs

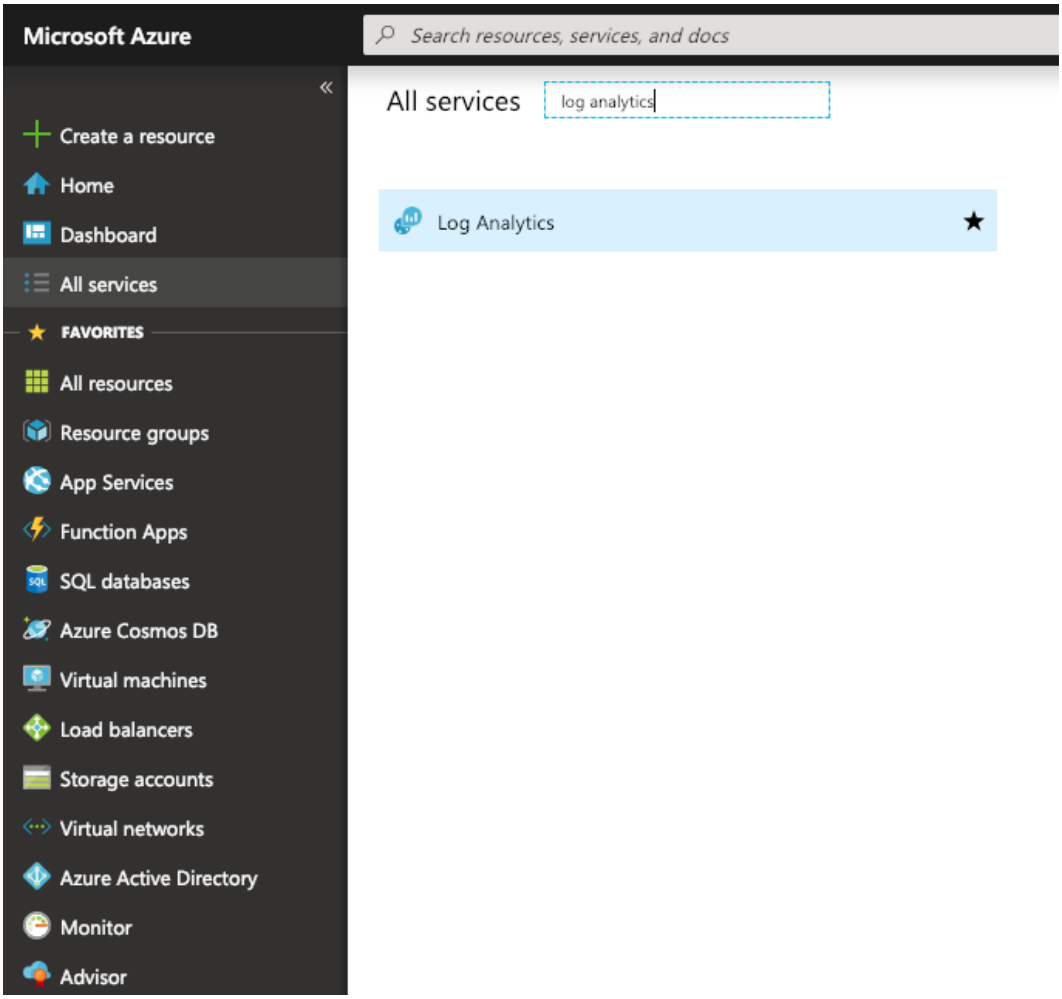


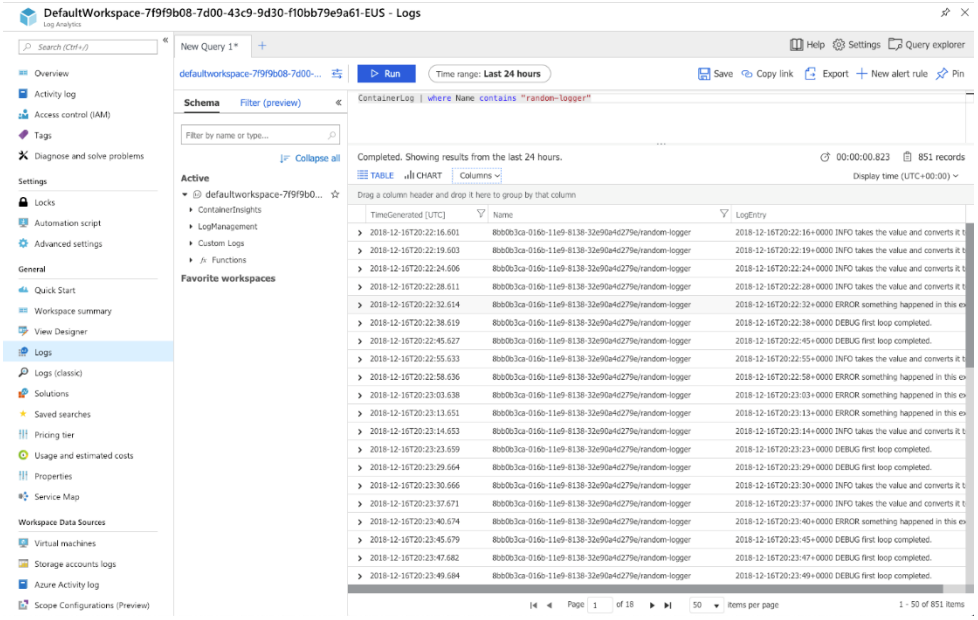

Find...
Dashboard
Events
Alerts
Settings
Help
Dec 07 22:57:46 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:57:36+0000 WARN variable not in use.
Dec 07 22:57:46 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:57:37+0000 DEBUG first loop completed.
Dec 07 22:57:46 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:57:40+0000 ERROR something happened in this execution.
Dec 07 22:57:46 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:57:43+0000 ERROR something happened in this execution.
Dec 07 22:57:46 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:57:44+0000 INFO takes the value and converts it to string.
Dec 07 22:57:46 devops25-.orphaned-fluentd-papertrail-d8bzh fluentd: 2018-12-07 21:57:44 +0000 [info]: #0 following tail of
/var/log/containers/random-logger_default_random-logger-6304e5a5c66ed99b34bd35b3165c0a81627f9e986eec88fe6950f7ed4b377178.log
Dec 07 22:57:48 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:57:45+0000 ERROR something happened in this execution.
Dec 07 22:57:50 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:57:47+0000 INFO takes the value and converts it to string.
Dec 07 22:58:00 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:57:57+0000 DEBUG first loop completed.
Dec 07 22:58:08 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:06+0000 ERROR something happened in this execution.
Dec 07 22:58:14 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:11+0000 ERROR something happened in this execution.
Dec 07 22:58:18 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:16+0000 DEBUG first loop completed.
Dec 07 22:58:20 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:17+0000 WARN variable not in use.
Dec 07 22:58:24 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:22+0000 ERROR something happened in this execution.
Dec 07 22:58:28 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:26+0000 ERROR something happened in this execution.
Dec 07 22:58:36 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:34+0000 WARN variable not in use.
Dec 07 22:58:41 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:39+0000 WARN variable not in use.
Dec 07 22:58:45 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:43+0000 ERROR something happened in this execution.
Dec 07 22:58:49 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:47+0000 WARN variable not in use.
Dec 07 22:58:50 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:48+0000 ERROR something happened in this execution.
Dec 07 22:58:51 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:49+0000 ERROR something happened in this execution.
Dec 07 22:58:52 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:50+0000 DEBUG first loop completed.
Dec 07 22:58:53 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:51+0000 INFO takes the value and converts it to string.
Dec 07 22:58:54 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:52+0000 ERROR something happened in this execution.
Dec 07 22:58:58 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:56+0000 WARN variable not in use.
Dec 07 22:59:01 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:58:59+0000 ERROR something happened in this execution.
Dec 07 22:59:04 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:02+0000 DEBUG first loop completed.
Dec 07 22:59:07 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:05+0000 WARN variable not in use.
Dec 07 22:59:10 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:08+0000 WARN variable not in use.
Dec 07 22:59:13 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:11+0000 DEBUG first loop completed.
Dec 07 22:59:14 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:12+0000 ERROR something happened in this execution.
Dec 07 22:59:20 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:18+0000 ERROR something happened in this execution.
Dec 07 22:59:24 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:22+0000 WARN variable not in use.
Dec 07 22:59:29 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:27+0000 INFO takes the value and converts it to string.
Dec 07 22:59:34 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:32+0000 WARN variable not in use.
Dec 07 22:59:37 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:35+0000 DEBUG first loop completed.
Dec 07 22:59:39 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:37+0000 WARN variable not in use.
Dec 07 22:59:40 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:38+0000 ERROR something happened in this execution.
Dec 07 22:59:45 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:43+0000 ERROR something happened in this execution.
Dec 07 22:59:48 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:46+0000 DEBUG first loop completed.
Dec 07 22:59:50 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:48+0000 WARN variable not in use.
Dec 07 22:59:55 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:53+0000 INFO takes the value and converts it to string.
Dec 07 22:59:56 devops25-.orphaned-random-logger random-logger: 2018-12-07T21:59:54+0000 ERROR something happened in this execution.
Dec 07 23:00:03 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:01+0000 DEBUG first loop completed.
Dec 07 23:00:06 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:04+0000 ERROR something happened in this execution.
Dec 07 23:00:07 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:05+0000 DEBUG first loop completed.
Dec 07 23:00:11 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:10+0000 INFO takes the value and converts it to string.
Dec 07 23:00:14 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:12+0000 WARN variable not in use.
Dec 07 23:00:19 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:17+0000 INFO takes the value and converts it to string.
Dec 07 23:00:24 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:22+0000 WARN variable not in use.
Dec 07 23:00:28 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:26+0000 ERROR something happened in this execution.
Dec 07 23:00:32 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:30+0000 WARN variable not in use.
Dec 07 23:00:34 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:32+0000 ERROR something happened in this execution.
Dec 07 23:00:39 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:37+0000 WARN variable not in use.
Dec 07 23:00:39 devops25-.orphaned-random-logger random-logger: 2018-12-07T22:00:38+0000 INFO takes the value and converts it to string.
random-logger
Search
All Systems
PAUSE

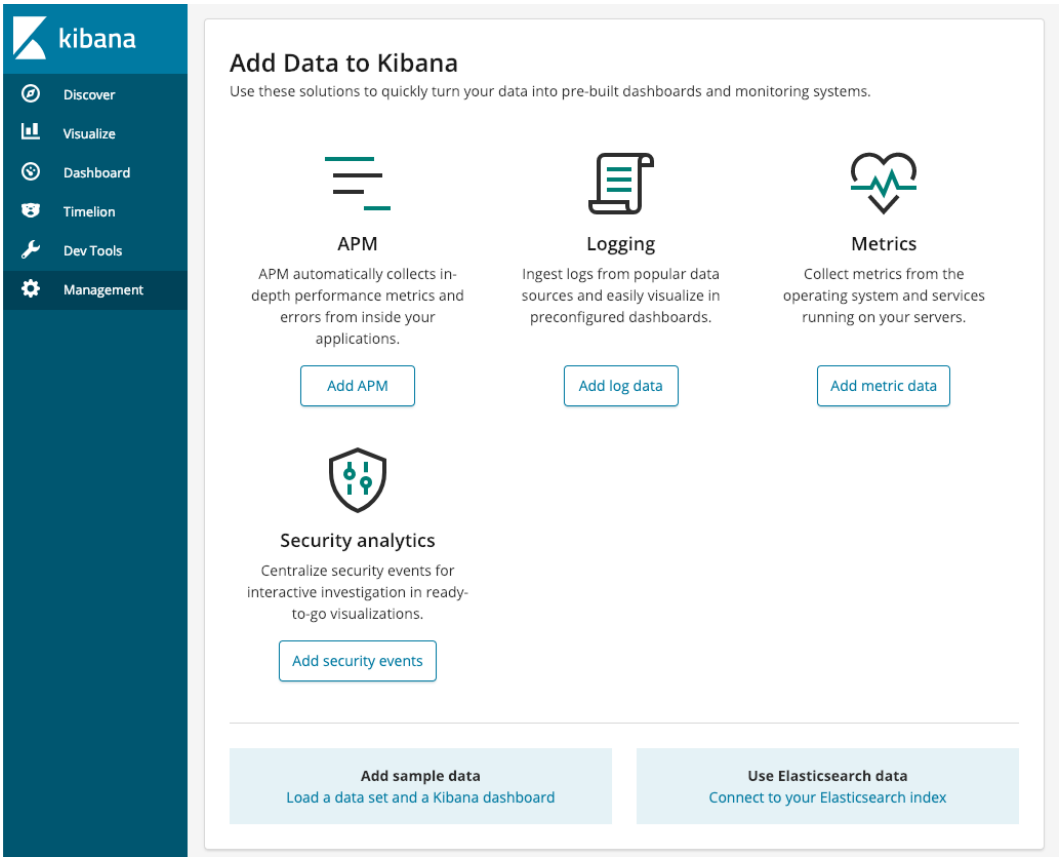

Syntax & Examples — Full Syntax Guide →
SEARCH: "Accepted password" sudo
SHOWS: events containing "Accepted password" and "sudo" (in any part of the message)
SEARCH: -CROND
SHOWS: events not containing "CROND"
SEARCH: (message-id postfix/smtpd) OR -google.com
SHOWS: events containing "message-id" and "postfix/smtpd", or not containing "google.com"
SEARCH: 10.1.2 -("TTL exceeded" OR "1 packet")
SHOWS: events containing 10.1.2 and neither "TTL exceeded" nor "1 packet"
SEARCH: program:(production.log staging.log) '"action"=>"index"' -("count(*)" OR abc)
SHOWS: events from "production.log" or "staging.log", containing '"action"=>"index"', and containing neither "count(*)" nor "abc"

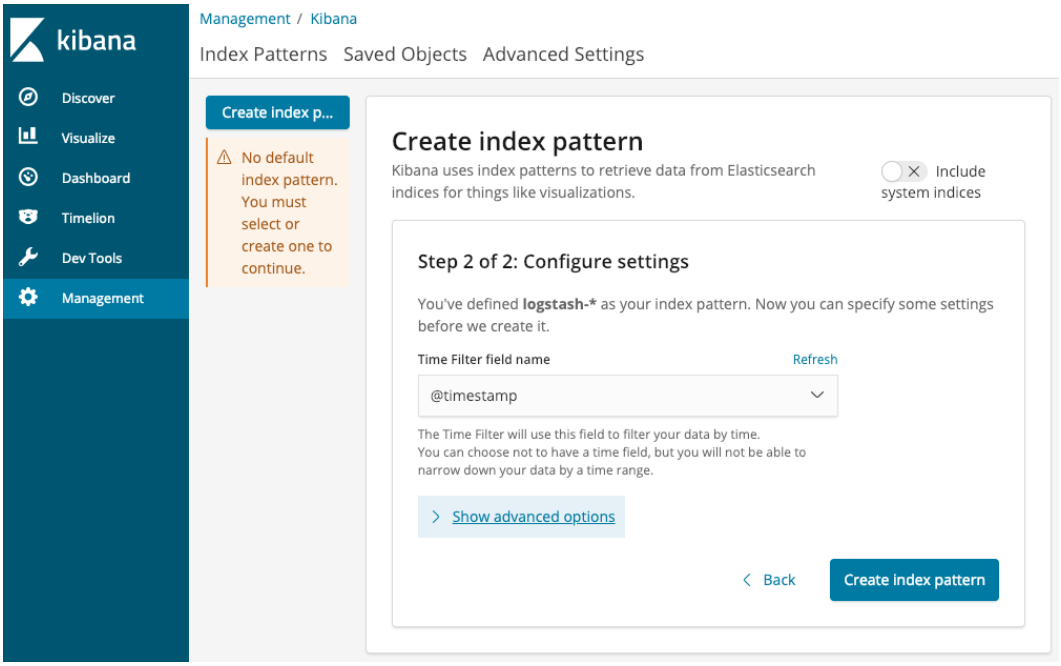

Google Cloud Platform
devops24-book
Stackdriver
Logging
CREATE METRIC
CREATE EXPORT
Logs
Logs-based metrics
Exports
Logs ingestion
text:random-logger
GKE Container
All logs
Any log level
No limit
Jump to now
Showing logs from all time (GST)
Download logs
View Options
2018-12-13 01:45:52.000 GST 2018-12-12T21:45:52+0000 ERROR something hap…
2018-12-13 01:45:55.000 GST 2018-12-12T21:45:55+0000 ERROR something hap…
2018-12-13 01:46:00.000 GST 2018-12-12T21:46:00+0000 ERROR something hap…
2018-12-13 01:46:03.000 GST 2018-12-12T21:46:03+0000 INFO takes the valu…
2018-12-13 01:46:07.000 GST 2018-12-12T21:46:07+0000 DEBUG first loop co…
2018-12-13 01:46:12.000 GST 2018-12-12T21:46:12+0000 ERROR something hap…
2018-12-13 01:46:14.000 GST 2018-12-12T21:46:14+0000 ERROR something hap…
2018-12-13 01:46:19.000 GST 2018-12-12T21:46:19+0000 DEBUG first loop co…
2018-12-13 01:46:24.000 GST 2018-12-12T21:46:24+0000 WARN variable not i…
2018-12-13 01:46:27.000 GST 2018-12-12T21:46:27+0000 DEBUG first loop…
2018-12-13 01:46:31.000 GST 2018-12-12T21:46:31+0000 WARN variable not i…
2018-12-13 01:46:32.000 GST 2018-12-12T21:46:32+0000 ERROR something hap…
2018-12-13 01:46:37.000 GST 2018-12-12T21:46:37+0000 WARN variable not i…
2018-12-13 01:46:38.000 GST 2018-12-12T21:46:38+0000 INFO takes the valu…
2018-12-13 01:46:42.000 GST 2018-12-12T21:46:42+0000 WARN variable not i…
2018-12-13 01:46:44.000 GST 2018-12-12T21:46:44+0000 INFO takes the valu…
2018-12-13 01:46:53.000 GST 2018-12-12T21:46:53+0000 WARN variable not i…
2018-12-13 01:46:56.000 GST 2018-12-12T21:46:56+0000 DEBUG first loop co…
No new entries found. Waiting for more.


aws
Services
Resource Groups
Viktor Farcic
Oregon
Support
CloudWatch
Dashboards
Alarms
ALARM 0
INSUFFICIENT 0
OK 0
Billing
Events
Rules
Event Buses
Logs
Insights
Metrics
Favorites
CloudWatch > Log Groups > /eks/devops25/containers > random-logger_default_random-logger-9510ad847a67f3359100690d9be2f7c4cb7fb5ec81433caab6984a4b40690ac6
Expand all
Row
Text
Filter events
all
2018-12-15 (22:44:48)
Time (UTC +00:00)
Message
2018-12-16
No older events found at the moment. Retry.
22:41:15
{"log":"2018-12-16T22:41:15+0000 ERROR something happened in this execution.\n","stream":"stdout","
{
"log": "2018-12-16T22:41:15+0000 ERROR something happened in this execution.\n",
"stream": "stdout",
"docker": {
"container_id": "9510ad847a67f3359100690d9be2f7c4cb7fb5ec81433caab6984a4b40690ac6"
},
"kubernetes": {
"container_name": "random-logger",
"namespace_name": "default",
"pod_name": "random-logger",
"pod_id": "a1bf04c8-017c-11e9-a0dc-061101b5d4ae",
"labels": {},
"host": "ip-192-168-92-74.us-west-2.compute.internal",
"master_url": "https://10.100.0.1:443/api",
"namespace_id": "1aaf9589-017a-11e9-a0dc-061101b5d4ae"
}
}
22:41:20
{"log":"2018-12-16T22:41:20+0000 INFO takes the value and converts it to string.\n","stream":"stdout","
22:41:23
{"log":"2018-12-16T22:41:23+0000 INFO takes the value and converts it to string.\n","stream":"stdout","


Microsoft Azure
Search resources, services, and docs
Create a resource
Home
Dashboard
All services
FAVORITES
All resources
Resource groups
App Services
Function Apps
SQL databases
Azure Cosmos DB
Virtual machines
Load balancers
Storage accounts
Virtual networks
Azure Active Directory
Monitor
Advisor
All services
log analytics
Log Analytics


DefaultWorkspace-7f9f9b08-7d00-43c9-9d30-f10bb79e9a61-EUS - Logs
Log Analytics
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Locks
Automation script
Advanced settings
General
Quick Start
Workspace summary
View Designer
Logs
Logs (classic)
Solutions
Saved searches
Pricing tier
Usage and estimated costs
Properties
Service Map
Workspace Data Sources
Virtual machines
Storage accounts logs
Azure Activity log
Scope Configurations (Preview)
New Query 1*
Help
Settings
Query explorer
defaultworkspace-7f9f9b08-7d00-...
Run
Time range: Last 24 hours
Save
Copy link
Export
New alert rule
Pin
Schema
Filter (preview)
Filter by name or type...
Collapse all
Active
defaultworkspace-7f9f9b0...
ContainerInsights
LogManagement
Custom Logs
Functions
Favorite workspaces
ContainerLog | where Name contains "random-logger"
Completed. Showing results from the last 24 hours.
00:00:00.823
851 records
TABLE
CHART
Columns
Display time (UTC+00:00)
Drag a column header and drop it here to group by that column
TimeGenerated [UTC]
Name
LogEntry
2018-12-16T20:22:16.601 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:22:16+0000 INFO takes the value and converts it t
2018-12-16T20:22:19.603 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:22:19+0000 INFO takes the value and converts it t
2018-12-16T20:22:24.606 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:22:24+0000 INFO takes the value and converts it t
2018-12-16T20:22:28.611 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:22:28+0000 INFO takes the value and converts it t
2018-12-16T20:22:32.614 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:22:32+0000 ERROR something happened in this ex
2018-12-16T20:22:38.619 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:22:38+0000 DEBUG first loop completed.
2018-12-16T20:22:45.627 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:22:45+0000 DEBUG first loop completed.
2018-12-16T20:22:55.633 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:22:55+0000 INFO takes the value and converts it t
2018-12-16T20:22:58.636 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:22:58+0000 ERROR something happened in this ex
2018-12-16T20:23:03.638 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:23:03+0000 ERROR something happened in this ex
2018-12-16T20:23:13.651 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:23:13+0000 ERROR something happened in this ex
2018-12-16T20:23:14.653 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:23:14+0000 INFO takes the value and converts it t
2018-12-16T20:23:23.659 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:23:23+0000 DEBUG first loop completed.
2018-12-16T20:23:29.664 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:23:29+0000 DEBUG first loop completed.
2018-12-16T20:23:30.666 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:23:30+0000 INFO takes the value and converts it t
2018-12-16T20:23:37.671 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:23:37+0000 INFO takes the value and converts it t
2018-12-16T20:23:40.674 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:23:40+0000 ERROR something happened in this ex
2018-12-16T20:23:45.679 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:23:45+0000 DEBUG first loop completed.
2018-12-16T20:23:47.682 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:23:47+0000 DEBUG first loop completed.
2018-12-16T20:23:49.684 8bb0b3ca-016b-11e9-8138-32e90a4d279e/random-logger 2018-12-16T20:23:49+0000 DEBUG first loop completed.
Page 1 of 18
50 items per page
1 - 50 of 851 items


kibana
Discover
Visualize
Dashboard
Timelion
Dev Tools
Management
Add Data to Kibana
Use these solutions to quickly turn your data into pre-built dashboards and monitoring systems.
APM
APM automatically collects in-depth performance metrics and errors from inside your applications.
Add APM
Logging
Ingest logs from popular data sources and easily visualize in preconfigured dashboards.
Add log data
Metrics
Collect metrics from the operating system and services running on your servers.
Add metric data
Security analytics
Centralize security events for interactive investigation in ready-to-go visualizations.
Add security events
Add sample data
Load a data set and a Kibana dashboard
Use Elasticsearch data
Connect to your Elasticsearch index


kibana
Discover
Visualize
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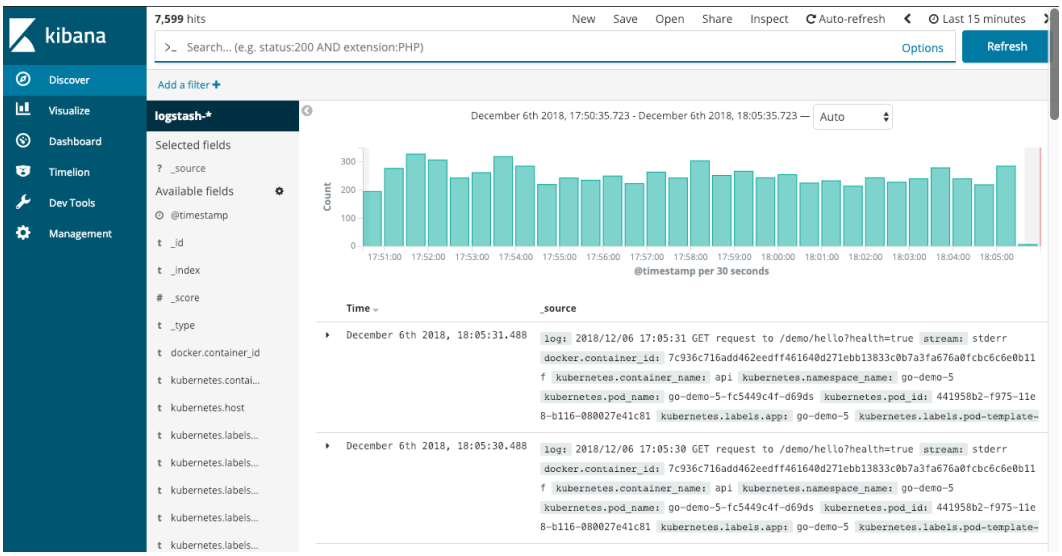
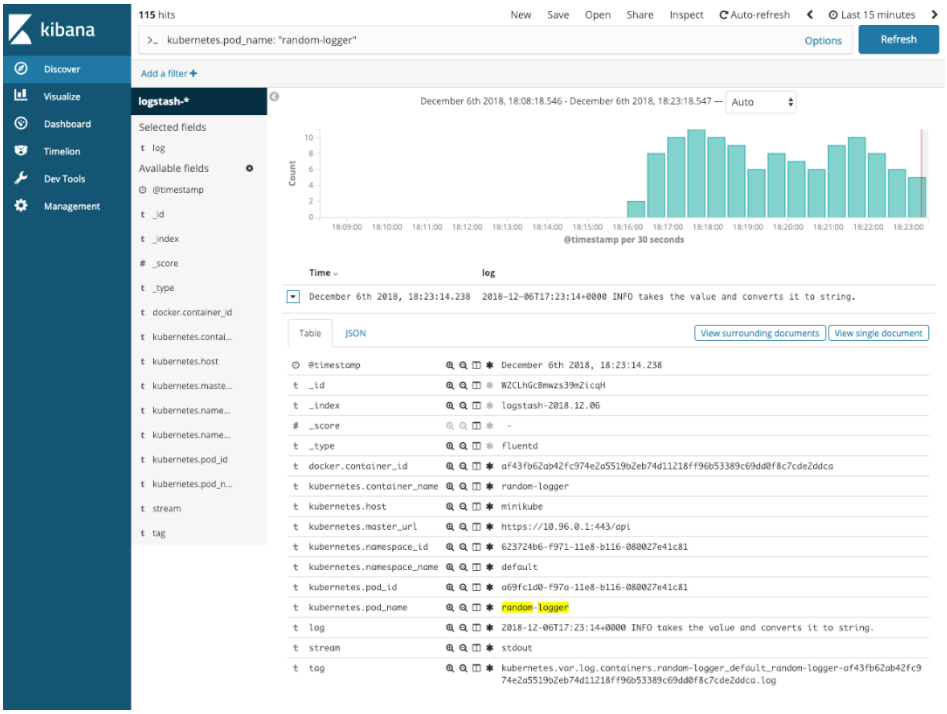
Dev Tools
Management
Management / Kibana
Index Patterns
Saved Objects
Advanced Settings
Create index p...
No default index pattern. You must select or create one to continue.
Create index pattern
Kibana uses index patterns to retrieve data from Elasticsearch indices for things like visualizations.
Include system indices
Step 2 of 2: Configure settings
You've defined logstash-* as your index pattern. Now you can specify some settings before we create it.
Time Filter field name
Refresh
@timestamp
The Time Filter will use this field to filter your data by time.
You can choose not to have a time field, but you will not be able to narrow down your data by a time range.
Show advanced options
Back
Create index pattern


kibana
Discover
Visualize
Dashboard
Timelion
Dev Tools
Management
7,599 hits
New
Save
Open
Share
Inspect
Auto-refresh
Last 15 minutes
Search... (e.g. status:200 AND extension:PHP)
Options
Refresh
Add a filter
logstash-*
Selected fields
_source
Available fields
@timestamp
_id
_index
_score
_type
docker.container_id
kubernetes.contai...
kubernetes.host
kubernetes.labels...
December 6th 2018, 17:50:35.723 - December 6th 2018, 18:05:35.723 — Auto
Count
@timestamp per 30 seconds
Time
_source
December 6th 2018, 18:05:31.488
log: 2018/12/06 17:05:31 GET request to /demo/hello?health=true stream: stderr docker.container_id: 7c936c716add462eedff461640d271ebb13833c0b7a3fa676a0fcbc6c6e0b11f kubernetes.container_name: api kubernetes.namespace_name: go-demo-5 kubernetes.pod_name: go-demo-5-fc5449c4f-d69ds kubernetes.pod_id: 441958b2-f975-11e8-b116-080027e41c81 kubernetes.labels.app: go-demo-5 kubernetes.labels.pod-template-
December 6th 2018, 18:05:30.488
log: 2018/12/06 17:05:30 GET request to /demo/hello?health=true stream: stderr docker.container_id: 7c936c716add462eedff461640d271ebb13833c0b7a3fa676a0fcbc6c6e0b11f kubernetes.container_name: api kubernetes.namespace_name: go-demo-5 kubernetes.pod_name: go-demo-5-fc5449c4f-d69ds kubernetes.pod_id: 441958b2-f975-11e8-b116-080027e41c81 kubernetes.labels.app: go-demo-5 kubernetes.labels.pod-template-


kibana
Discover
Visualize
Dashboard
Timelion
Dev Tools
Management
115 hits
New Save Open Share Inspect Auto-refresh Last 15 minutes
>_ kubernetes.pod_name: "random-logger"
Options
Refresh
Add a filter +
logstash-*
Selected fields
t log
Available fields
@timestamp
_id
_index
_score
_type
docker.container_id
kubernetes.contai...
kubernetes.host
kubernetes.maste...
kubernetes.name...
kubernetes.name...
kubernetes.pod_id
kubernetes.pod_n...
stream
tag
December 6th 2018, 18:08:18.546 - December 6th 2018, 18:23:18.547 — Auto
Count
@timestamp per 30 seconds
Time
log
December 6th 2018, 18:23:14.238
2018-12-06T17:23:14+0000 INFO takes the value and converts it to string.
Table
JSON
View surrounding documents
View single document
@timestamp December 6th 2018, 18:23:14.238
_id WZClhGcBmwzs39m2icqH
_index logstash-2018.12.06
_score -
_type fluentd
docker.container_id af43fb62ab42fc974e2a5519b2eb74d11218ff96b53389c69dd0f8c7cde2ddca
kubernetes.container_name random-logger
kubernetes.host minikube
kubernetes.master_url https://10.96.0.1:443/api
kubernetes.namespace_id 623724b6-f971-11e8-b116-080027e41c81
kubernetes.namespace_name default
kubernetes.pod_id a69fc1d0-f97a-11e8-b116-080027e41c81
kubernetes.pod_name random-logger
log 2018-12-06T17:23:14+0000 INFO takes the value and converts it to string.
stream stdout
tag kubernetes.var.log.containers.random-logger_default_random-logger-af43fb62ab42fc974e2a5519b2eb74d11218ff96b53389c69dd0f8c7cde2ddca.log