Istio

https://cloud.google.com/kubernetes-engine/docs/tutorials/installing-istio

```
gcloud components install kubectl

gcloud config set project avian-compiler-238122
gcloud config set compute/zone us-central1-f
gcloud info

gcloud container clusters create istio-tutorial \
    --machine-type=n1-standard-2 \
    --num-nodes=4
```

```
WARNING: Starting in Kubernetes v1.10, new clusters will no longer get compute-rw and storage-ro scopes added to what is specified in --scopes (though the latter will remain included in the default --scopes). To use these scopes, add them explicitly to --scopes. To use the new behavior, set container/new_scopes_behavior property (gcloud config set container/new_scopes_behavior true).
Creating cluster istio-tutorial in us-central1-f... Cluster is being health-checked (master is healthy)...done.
Created [https://container.googleapis.com/v1/projects/avian-compiler-238122/zones/us-central1-f/clusters/istio-tutorial].
To inspect the contents of your cluster, go to: https://console.cloud.google.com/kubernetes/workload_/gcloud/us-central1-f/istio-tutorial?project=avian-compiler-238122
kubeconfig entry generated for istio-tutorial.

NAME            LOCATION       MASTER_VERSION  MASTER_IP       MACHINE_TYPE  NODE_VERSION  NUM_NODES  STATUS
istio-tutorial  us-central1-f  1.11.8-gke.6    104.154.91.191  n1-standard-2  1.11.8-gke.6  4          RUNNING
```

Not required. Only if it is not connected.

```
gcloud container clusters \
    get-credentials istio-tutorial \
    --zone us-central1-f
```

```
kubectl version
Client Version: version.Info{Major:"1", Minor:"11+", GitVersion:"v1.11.9-dispatcher",
GitCommit:"e3f5193e8f1091a162af7e17a781e6a3129bcfd0", GitTreeState:"clean",
BuildDate:"2019-03-28T18:13:46Z", GoVersion:"go1.10.8", Compiler:"gc",
Platform:"linux/amd64"}
Server Version: version.Info{Major:"1", Minor:"11+", GitVersion:"v1.11.8-gke.6",
GitCommit:"394ee507d00f15a63cef577a14026096c310698e",
GitTreeState:"clean", BuildDate:"2019-03-30T19:31:43Z", GoVersion:"go1.10.8b4",
Compiler:"gc", Platform:"linux/amd64"}
```

https://cloud.google.com/kubernetes-engine/docs/tutorials/installing-istio

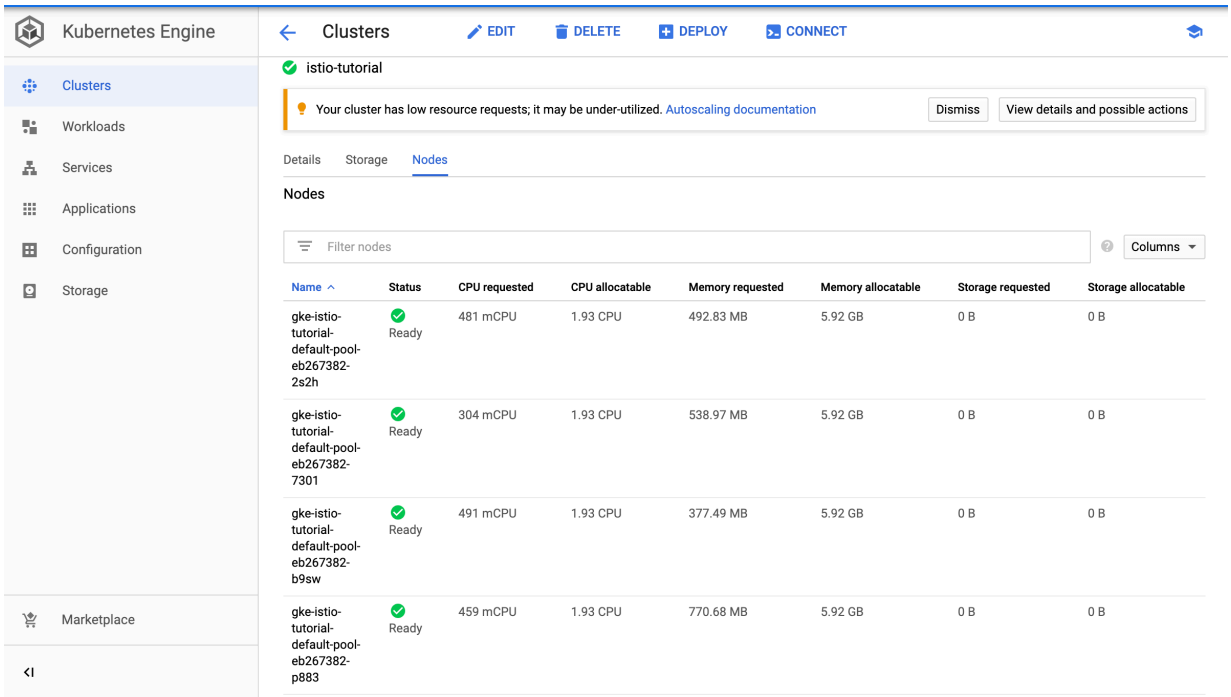
```
pwd
/home/apigeefellow/istio/istio-1.1.3
export PATH=$PWD/bin:$PATH

kubectl create clusterrolebinding cluster-admin-binding \
  --clusterrole=cluster-admin \
  --user="$(gcloud config get-value core/account)"
Your active configuration is: [cloudshell-16134]
clusterrolebinding.rbac.authorization.k8s.io/cluster-admin-binding created
```

**kubectl get pod**

```
No resources found.
```

**kubectl get nodes**

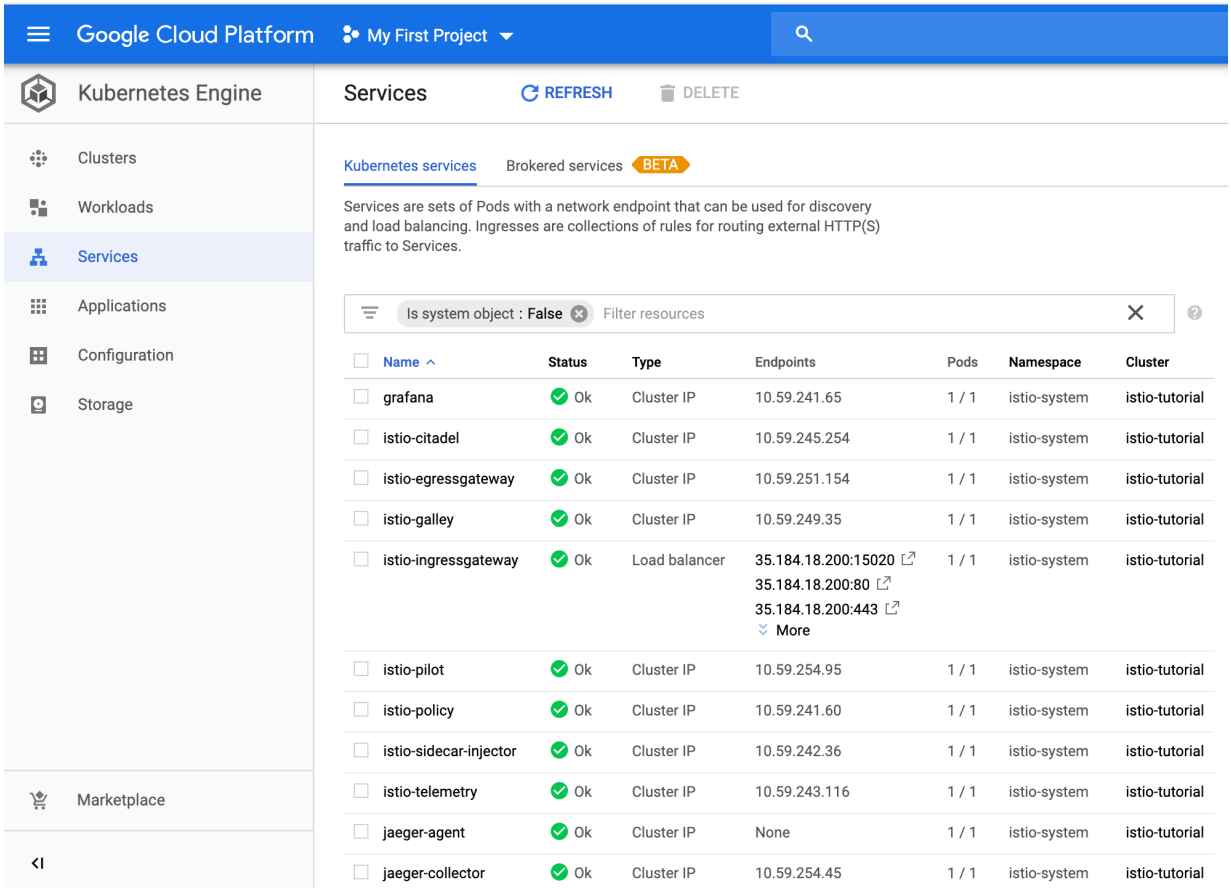
```
NAME                                          STATUS    ROLES     AGE       VERSION
gke-istio-tutorial-default-pool-eb267382-2s2h   Ready     <none>    9m
v1.11.8-gke.6
gke-istio-tutorial-default-pool-eb267382-7301   Ready     <none>    9m
v1.11.8-gke.6
gke-istio-tutorial-default-pool-eb267382-b9sw   Ready     <none>    9m
v1.11.8-gke.6
gke-istio-tutorial-default-pool-eb267382-p883   Ready     <none>    9m
v1.11.8-gke.6
```

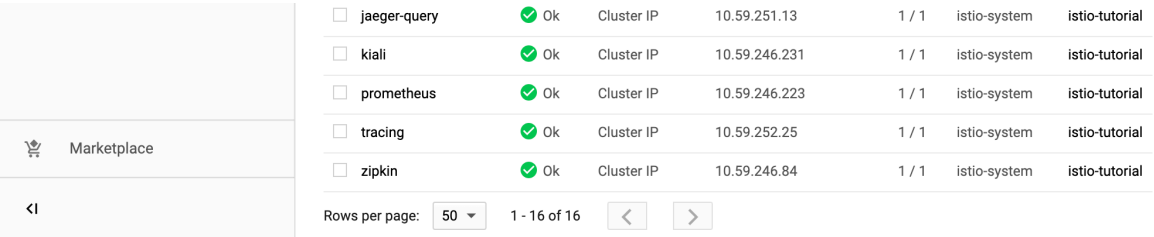



**kubectl apply -f install/kubernetes/istio-demo-auth.yaml**

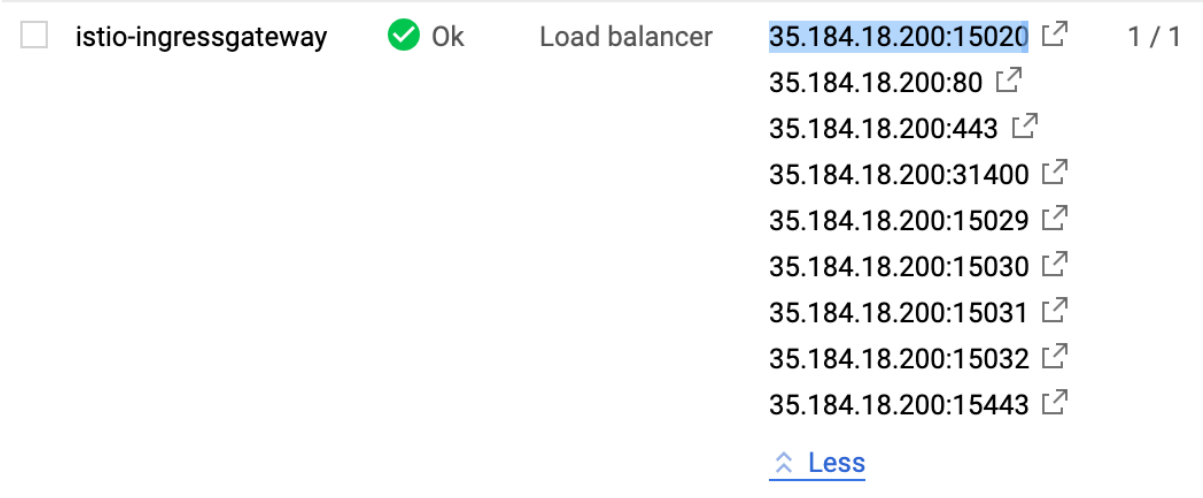
```
$ kubectl get service -n istio-system
NAME                     TYPE           CLUSTER-IP     EXTERNAL-IP     PORT(S)
AGE
grafana                  ClusterIP      10.59.241.65   <none>          3000/TCP
1m
istio-citadel            ClusterIP      10.59.245.254  <none>          8060/TCP,15014/
TCP                                                                                1m
istio-egressgateway      ClusterIP      10.59.251.154  <none>          80/TCP,443/
TCP,15443/TCP
1m
istio-galley             ClusterIP      10.59.249.35   <none>          443/TCP,15014/TCP,
9901/TCP                                                                           1m
istio-ingressgateway     LoadBalancer   10.59.248.142  35.184.18.200
15020:32761/TCP,80:31380/TCP,443:31390/TCP,31400:31400/TCP,15029:30213/
TCP,15030:31282/TCP,15031:31748/TCP,15032:32180/TCP,15443:31583/TCP   1m
istio-pilot              ClusterIP      10.59.254.95   <none>          15010/TCP,15011/TCP,
8080/TCP,15014/TCP
1m
istio-policy             ClusterIP      10.59.241.60   <none>          9091/TCP,15004/TCP,
15014/TCP                                                                          1m
istio-sidecar-injector   ClusterIP      10.59.242.36   <none>          443/TCP
1m
```

```
istio-telemetry      ClusterIP    10.59.243.116   <none>        9091/TCP,15004/
TCP,15014/TCP,42422/TCP
1m
jaeger-agent         ClusterIP    None            <none>        5775/UDP,6831/UDP,
6832/UDP                                                                        1m
jaeger-collector     ClusterIP    10.59.254.45    <none>        14267/TCP,14268/
TCP                                                                             1m
jaeger-query         ClusterIP    10.59.251.13    <none>        16686/TCP
1m
kiali                ClusterIP    10.59.246.231   <none>        20001/TCP
1m
prometheus           ClusterIP    10.59.246.223   <none>        9090/TCP
1m
tracing              ClusterIP    10.59.252.25    <none>        80/TCP
1m
zipkin               ClusterIP    10.59.246.84    <none>        9411/TCP
```






## Ingress Gateway




## Service Detail Pilot

Service details REFRESH EDIT DELETE KUBECTL

istio-pilot

Overview Details Events YAML

1h 6h 1d 7d 30d

CPU Memory Disk

Apr 25, 2019 9:30 AM Apr 25, 2019 9:30 AM Apr 25, 2019 9:30 AM

No data for this time interval No data for this time interval No data for this time interval

| | |
|---|---|
| Cluster | istio-tutorial |
| Namespace | istio-system |
| Labels | app : pilot chart : pilot heritage : Tiller istio : pilot release : istio |
| Stackdriver logs | Deployment: istio-pilot |
| Type | ClusterIP |

ClusterIP

| | |
|---|---|
| Cluster IP | 10.59.254.95 |

## $ kubectl get pods -n istio-system

```
NAME                                    READY   STATUS      RESTARTS   AGE
grafana-7dc68dd886-vp4qc                1/1     Running     0          8m
istio-citadel-84884f986d-tn55x          1/1     Running     0          8m
istio-cleanup-secrets-1.1.3-pnr5z       0/1     Completed   0          8m
istio-egressgateway-f6bf4d6d-v79t7      1/1     Running     0          8m
istio-galley-8579b6d5b7-qlz5h           1/1     Running     0          8m
istio-grafana-post-install-1.1.3-cj8fj  0/1     Completed   0          8m
istio-ingressgateway-65cdd8b5b5-tcn5t   1/1     Running     0          8m
istio-pilot-54bf565d8d-2t2cx            2/2     Running     0          8m
istio-policy-767bd44c57-ng456           2/2     Running     2          8m
istio-security-post-install-1.1.3-b77qp 0/1     Completed   0          8m
istio-sidecar-injector-9885d9999-cphgb  1/1     Running     0          8m
istio-telemetry-66b647d9f7-rq2fp        2/2     Running     2          8m
istio-tracing-7454db9d79-tfmlb          1/1     Running     0          8m
kiali-dbfc976b7-8c6f4                   1/1     Running     0          8m
prometheus-78f7f5b5f4-d8vkg             1/1     Running     0          8m
```

**$ kubectl apply -f <(istioctl kube-inject -f samples/bookinfo/platform/kube/bookinfo.yaml)**

```
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$ kubectl apply -f <(istioctl kube-inject -f samples/bookinfo/platform/kube/bookinfo.
yaml)
service/details created
deployment.extensions/details-v1 created
service/ratings created
deployment.extensions/ratings-v1 created
service/reviews created
deployment.extensions/reviews-v1 created
deployment.extensions/reviews-v2 created
deployment.extensions/reviews-v3 created
service/productpage created
deployment.extensions/productpage-v1 created
```

service/details created
deployment.extensions/details-v1 created
service/ratings created
deployment.extensions/ratings-v1 created
service/reviews created
deployment.extensions/reviews-v1 created
deployment.extensions/reviews-v2 created
deployment.extensions/reviews-v3 created
service/productpage created
deployment.extensions/productpage-v1 created

**$ kubectl get services**

NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
details ClusterIP 10.59.241.1 <none> 9080/TCP 31s
kubernetes ClusterIP 10.59.240.1 <none> 443/TCP 25m
productpage ClusterIP 10.59.252.231 <none> 9080/TCP 30s
ratings ClusterIP 10.59.242.28 <none> 9080/TCP 31s
reviews ClusterIP 10.59.243.233 <none> 9080/TCP 31s

```
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$ kubectl get services
NAME          TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)    AGE
details       ClusterIP   10.59.241.1     <none>        9080/TCP   31s
kubernetes    ClusterIP   10.59.240.1     <none>        443/TCP    25m
productpage   ClusterIP   10.59.252.231   <none>        9080/TCP   30s
ratings       ClusterIP   10.59.242.28    <none>        9080/TCP   31s
reviews       ClusterIP   10.59.243.233   <none>        9080/TCP   31s
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$
```

**$ kubectl get pods**

NAME READY STATUS RESTARTS AGE
details-v1-999664558-8h4kf 2/2 Running 0 1m

productpage-v1-8575fdd664-j44wq 2/2 Running 0 1m
ratings-v1-76cc99546b-5ldmz 2/2 Running 0 1m
reviews-v1-f4b95c5c-f7g5b 2/2 Running 0 1m
reviews-v2-fd45b58f6-bsfhd 2/2 Running 0 1m
reviews-v3-55d58868f9-j5fqs 2/2 Running 0 1m

```
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$ kubectl get pods
NAME                                READY     STATUS    RESTARTS   AGE
details-v1-999664558-8h4kf          2/2       Running   0          1m
productpage-v1-8575fdd664-j44wq     2/2       Running   0          1m
ratings-v1-76cc99546b-5ldmz         2/2       Running   0          1m
reviews-v1-f4b95c5c-f7g5b           2/2       Running   0          1m
reviews-v2-fd45b58f6-bsfhd          2/2       Running   0          1m
reviews-v3-55d58868f9-j5fqs         2/2       Running   0          1m
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$
```

$ **kubectl apply -f samples/bookinfo/networking/bookinfo-gateway.yaml**

gateway.networking.istio.io/bookinfo-gateway created
virtualservice.networking.istio.io/bookinfo created

**$ kubectl get svc istio-ingressgateway -n istio-system**

NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S)
AGE
istio-ingressgateway LoadBalancer 10.59.248.142 35.184.18.200
15020:32761/TCP,80:31380/TCP,443:31390/TCP,31400:31400/TCP,15029:30213/
TCP,15030:31282/TCP,15031:31748/TCP,15032:32180/TCP,15443:31583/TCP
16m

```
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$ kubectl apply -f samples/bookinfo/networking/bookinfo-gateway.yaml
gateway.networking.istio.io/bookinfo-gateway created
virtualservice.networking.istio.io/bookinfo created
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$ kubectl get svc istio-ingressgateway -n istio-system
NAME                   TYPE           CLUSTER-IP      EXTERNAL-IP     PORT(S)
                                                      AGE
istio-ingressgateway   LoadBalancer   10.59.248.142   35.184.18.200   15020:32761/TCP,80:31380/TCP,443:31390/TCP,31400:31400/TCP,15029:30213/TCP,15030:3
1282/TCP,15031:31748/TCP,15032:32180/TCP,15443:31583/TCP   16m
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$
```

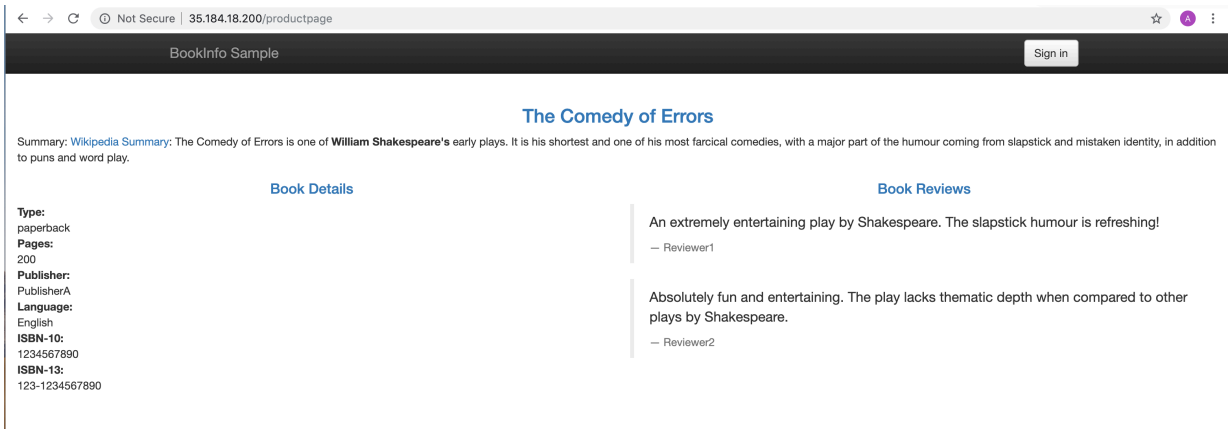
$ **export GATEWAY_URL=35.184.18.200:80**

**$ curl -I http://${GATEWAY_URL}/productpage**

HTTP/1.1 200 OK
content-type: text/html; charset=utf-8
content-length: 5723

server: istio-envoy
date: Thu, 25 Apr 2019 15:41:30 GMT
x-envoy-upstream-service-time: 1304

http://35.184.18.200/productpage




Status

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to avian-compiler-238122.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
apigeefellow@cloudshell:~ (avian-compiler-238122)$ kubectl get pod
NAME                              READY     STATUS    RESTARTS   AGE
details-v1-999664558-8h4kf        2/2       Running   0          2h
productpage-v1-8575fdd664-j44wq   2/2       Running   0          2h
ratings-v1-76cc99546b-5ldmz       2/2       Running   0          2h
reviews-v1-f4b95c5c-f7g5b         2/2       Running   0          2h
reviews-v2-fd45b58f6-bsfhd        2/2       Running   0          2h
reviews-v3-55d58868f9-j5fqs       2/2       Running   0          2h
apigeefellow@cloudshell:~ (avian-compiler-238122)$ kubectl get service
NAME          TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)    AGE
details       ClusterIP   10.59.241.1     <none>        9080/TCP   2h
kubernetes    ClusterIP   10.59.240.1     <none>        443/TCP    2h
productpage   ClusterIP   10.59.252.231   <none>        9080/TCP   2h
ratings       ClusterIP   10.59.242.28    <none>        9080/TCP   2h
reviews       ClusterIP   10.59.243.233   <none>        9080/TCP   2h
apigeefellow@cloudshell:~ (avian-compiler-238122)$
```

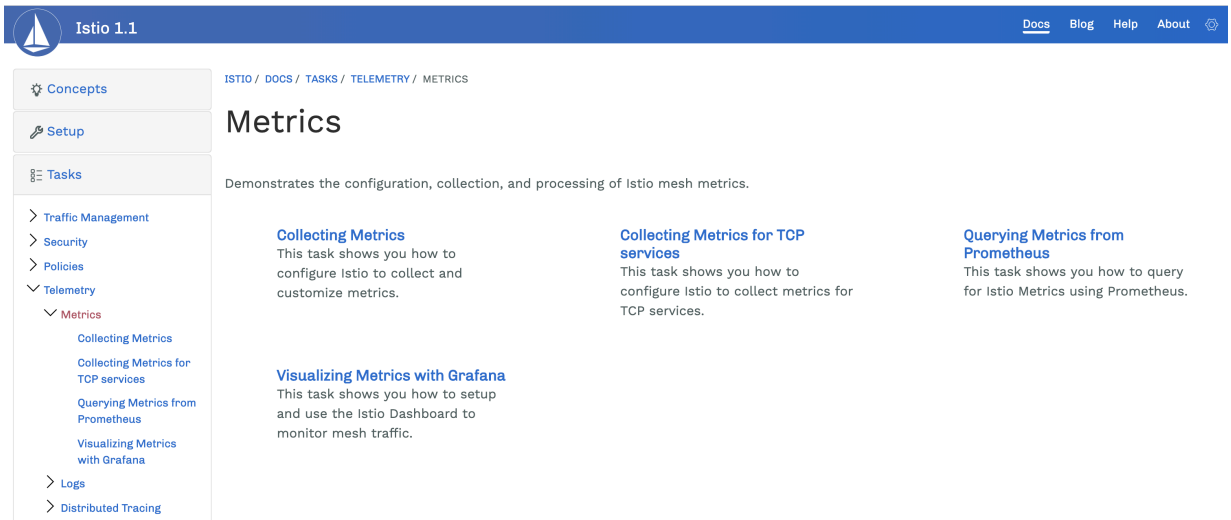
Telemetry - collecting metrics

https://istio.io/docs/tasks/telemetry/metrics/collecting-metrics/

$ kubectl apply -f samples/bookinfo/telemetry/metrics.yaml
instance.config.istio.io/doublerequestcount created

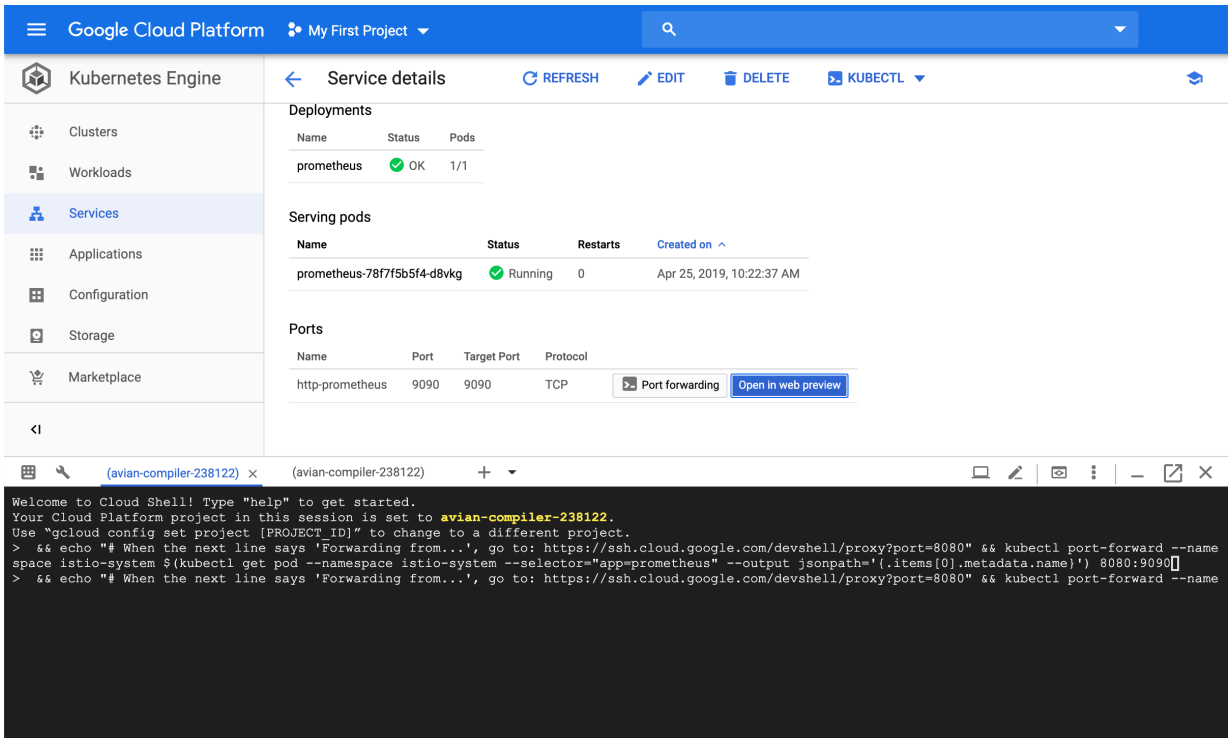
handler.config.istio.io/doublehandler created
rule.config.istio.io/doubleprom created

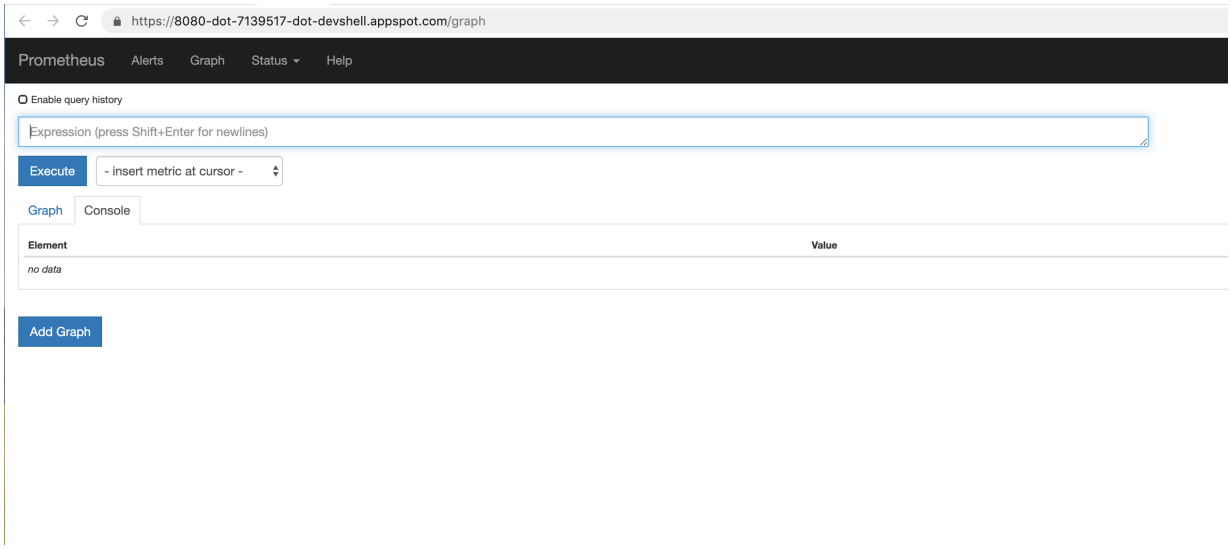
```
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$ !84
export PATH=$PWD/bin:$PATH
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$ kubectl apply -f samples/bookinfo/telemetry/metrics.yaml
instance.config.istio.io/doublerequestcount created
handler.config.istio.io/doublehandler created
rule.config.istio.io/doubleprom created
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$
```



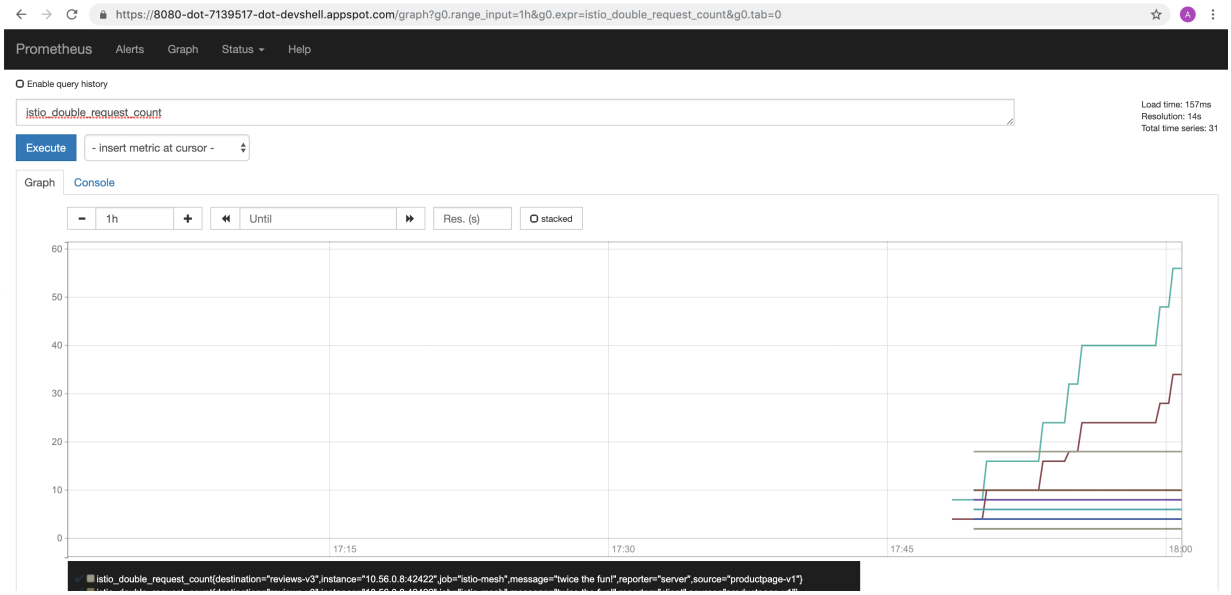

kubectl -n istio-system port-forward $(kubectl -n istio-system get pod -l app=prometheus -o jsonpath='{.items[0].metadata.name}') 9090:9090 &

```
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$ kubectl -n istio-system port-forward $(kubectl -n istio-system get pod -l app=prometheus -o jsonpath='{.items[0].metadata.name}'
) 9090:9090 &
[1] 459
apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$ Forwarding from 127.0.0.1:9090 -> 9090

apigeefellow@cloudshell:~/istio/istio-1.1.3 (avian-compiler-238122)$
```




https://8080-dot-7139517-dot-devshell.appspot.com/graph?g0.range_input=1h&g0.expr=istio_double_request_count&g0.tab=0




https://istio.io/docs/tasks/telemetry/metrics/using-istio-dashboard/

Visualizing Metrics with Grafana

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to avian-compiler-238122.
Use “gcloud config set project [PROJECT_ID]” to change to a different project.
apigeefellow@cloudshell:~ (avian-compiler-238122)$ kubectl -n istio-system get svc prometheus
NAME         TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)    AGE
prometheus   ClusterIP   10.59.246.223   <none>        9090/TCP   2h
apigeefellow@cloudshell:~ (avian-compiler-238122)$ kubectl -n istio-system get svc grafana
NAME      TYPE        CLUSTER-IP     EXTERNAL-IP   PORT(S)    AGE
grafana   ClusterIP   10.59.241.65   <none>        3000/TCP   2h
apigeefellow@cloudshell:~ (avian-compiler-238122)$
```

kubectl -n istio-system get svc prometheus
kubectl -n istio-system get svc grafana

Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to **avian-compiler-238122**.
Use “gcloud config set project [PROJECT_ID]” to change to a different project.
apigeefellow@cloudshell:**~ (avian-compiler-238122)**$ kubectl -n istio-system get svc prometheus
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
prometheus ClusterIP 10.59.246.223 <none> 9090/TCP 2h
apigeefellow@cloudshell:**~ (avian-compiler-238122)**$ kubectl -n istio-system get svc grafana
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE

grafana ClusterIP 10.59.241.65 <none> 3000/TCP 2h
apigeefellow@cloudshell:~ **(avian-compiler-238122)**$

Is system object : False | Filter resources

| Name | Status | Type | Endpoints | Pods | Namespace | Cluster |
|---|---|---|---|---|---|---|
| details | Ok | Cluster IP | 10.59.241.1 | 1 / 1 | default | istio-tutorial |
| grafana | Ok | Cluster IP | 10.59.241.65 | 1 / 1 | istio-system | istio-tutorial |

Google Cloud Platform | My First Project

Kubernetes Engine | Service details | REFRESH | EDIT | DELETE | KUBECTL

- Clusters
- Workloads
- Services
- Applications
- Configuration
- Storage
- Marketplace

| | |
|---|---|
| Cluster | istio-tutorial |
| Namespace | istio-system |
| Labels | app : grafana, chart : grafana, heritage : Tiller, release : istio |
| Stackdriver logs | Deployment: grafana |
| Type | ClusterIP |

ClusterIP

| | |
|---|---|
| Cluster IP | 10.59.241.65 |

Deployments

| Name | Status | Pods |
|---|---|---|
| grafana | OK | 1/1 |

Serving pods

| Name | Status | Restarts | Created on |
|---|---|---|---|
| grafana-7dc68dd886-vp4qc | Running | 0 | Apr 25, 2019, 10:22:36 AM |

Ports

| Name | Port | Target Port | Protocol | |
|---|---|---|---|---|
| http | 3000 | 3000 | TCP | Port forwarding |

Marketplace

| Name | Port | Target Port | Protocol | | |
|---|---|---|---|---|---|
| http | 3000 | 3000 | TCP | Port forwarding | Open in web preview |

(avian-compiler-238122)

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to avian-compiler-238122.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
apigeefellow@cloudshell:~ (avian-compiler-238122)$ \
> gcloud container clusters get-credentials istio-tutorial --zone us-central1-f --project avian-compiler-238122 \
> && echo "# When the next line says 'Forwarding from...', go to: https://ssh.cloud.google.com/devshell/proxy?port=8080" && kubectl port-forward --name
space istio-system $(kubectl get pod --namespace istio-system --selector="app=grafana" --output jsonpath='{.items[0].metadata.name}') 8080:3000
```

kubectl -n istio-system port-forward $(kubectl -n istio-system get pod -l

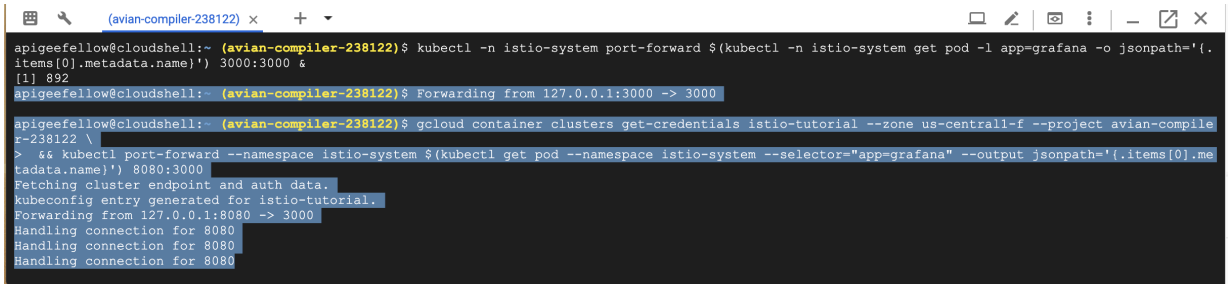
app=grafana -o jsonpath='{.items[0].metadata.name}') 3000:3000 &

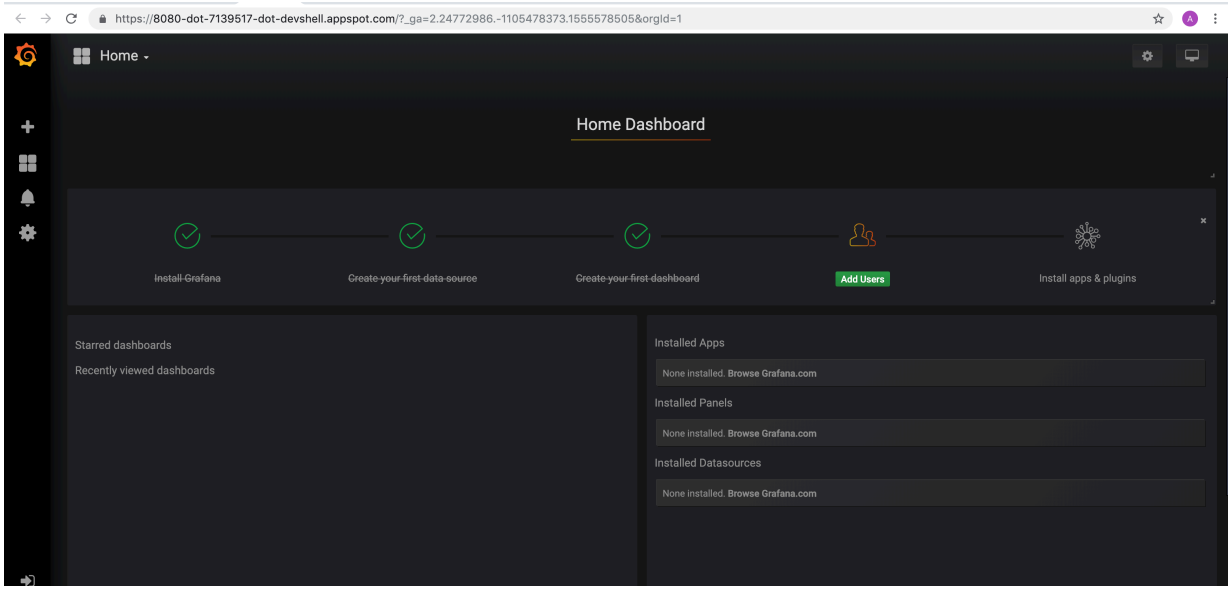
apigeefellow@cloudshell:~ (avian-compiler-238122)$ kubectl -n istio-system port-forward $(kubectl -n istio-system get pod -l app=grafana -o jsonpath='{.items[0].metadata.name}') 3000:3000 &
[1] 892
apigeefellow@cloudshell:~ (avian-compiler-238122)$ Forwarding from 127.0.0.1:3000 -> 3000

apigeefellow@cloudshell:~ (avian-compiler-238122)$

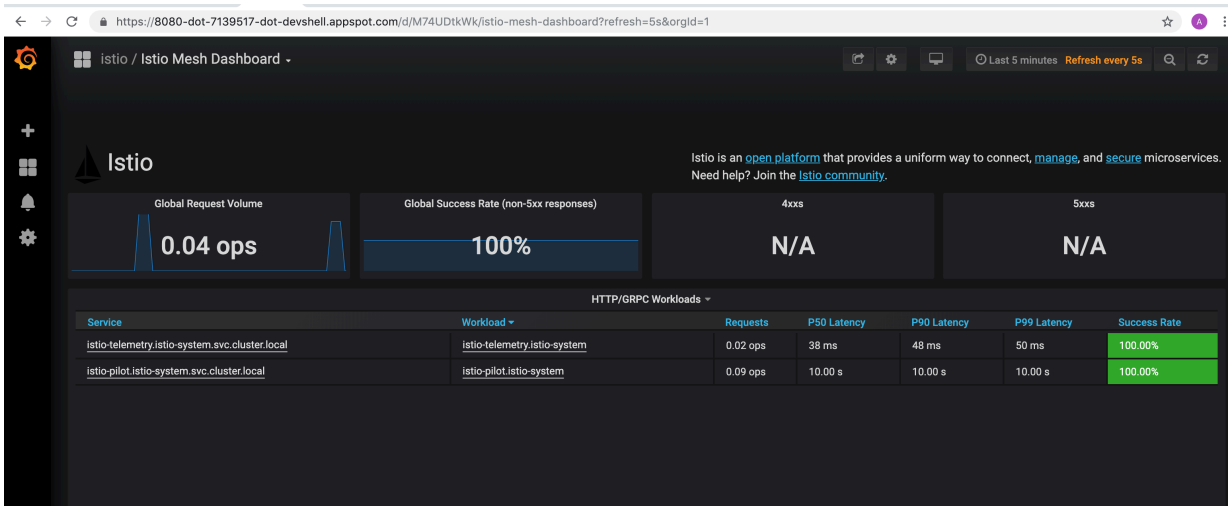
apigeefellow@cloudshell:**~ (avian-compiler-238122)**$ Forwarding from 127.0.0.1:3000 -> 3000

apigeefellow@cloudshell:**~ (avian-compiler-238122)**$ gcloud container clusters get-credentials istio-tutorial --zone us-central1-f --project avian-compile r-238122 \
>  && kubectl port-forward --namespace istio-system $(kubectl get pod --namespace istio-system --selector="app=grafana" --output jsonpath='{.items[0].me
tadata.name}') 8080:3000
Fetching cluster endpoint and auth data.
kubeconfig entry generated for istio-tutorial.
Forwarding from 127.0.0.1:8080 -> 3000
Handling connection for 8080
Handling connection for 8080
Handling connection for 8080
Handling connection for 8080
Handling connection for 8080

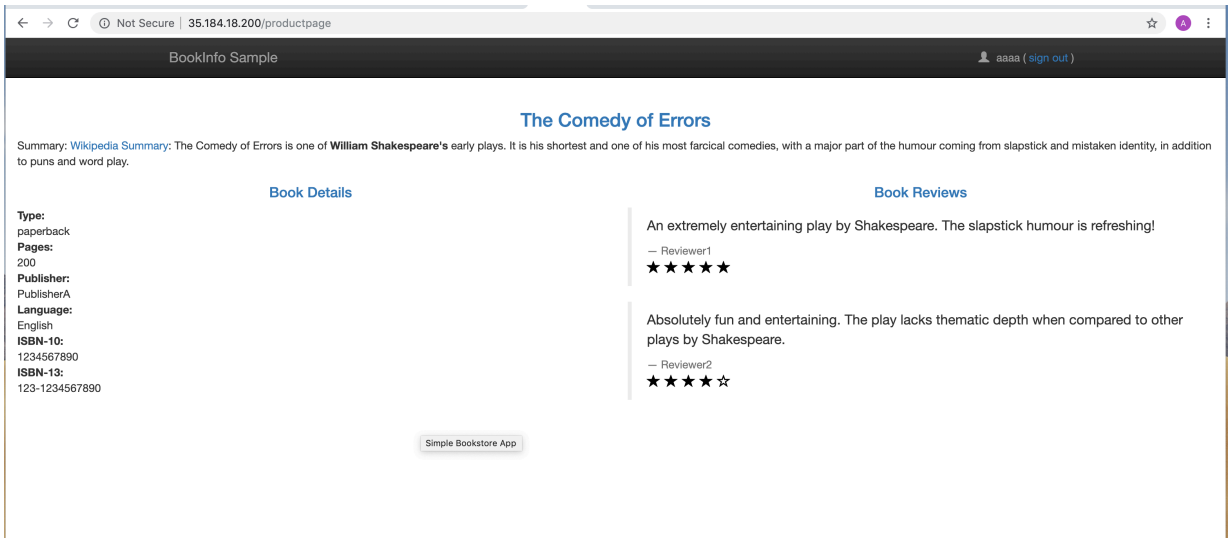


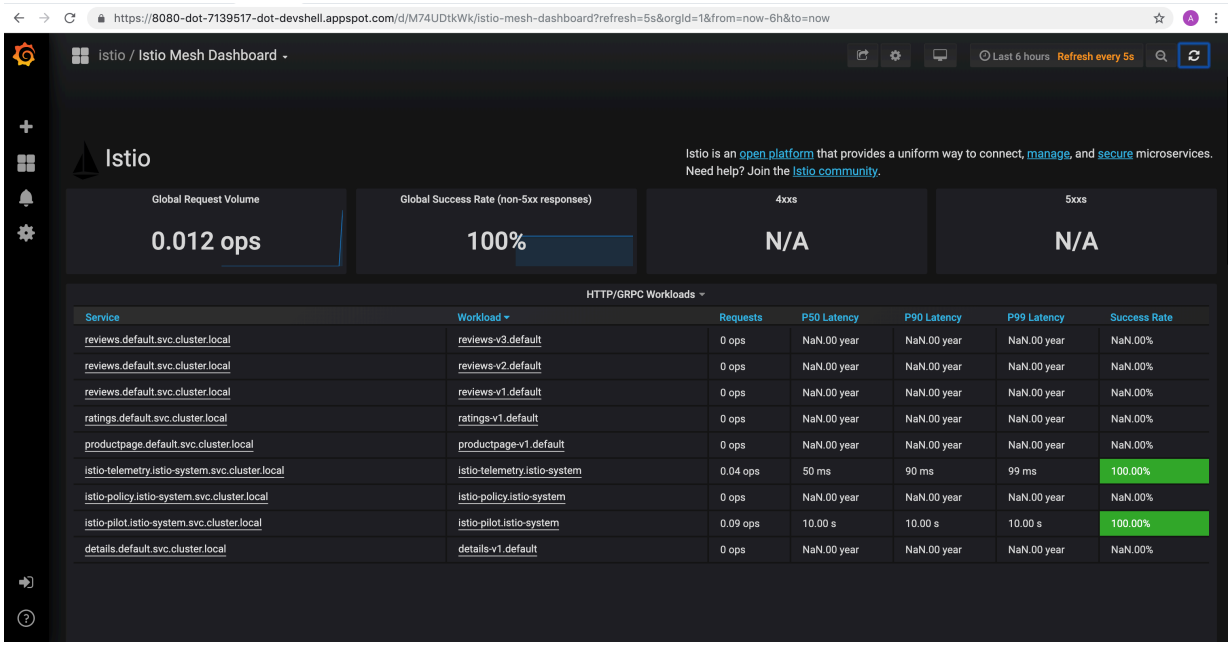



https://8080-dot-7139517-dot-devshell.appspot.com/dashboard/db/istio-mesh-dashboard

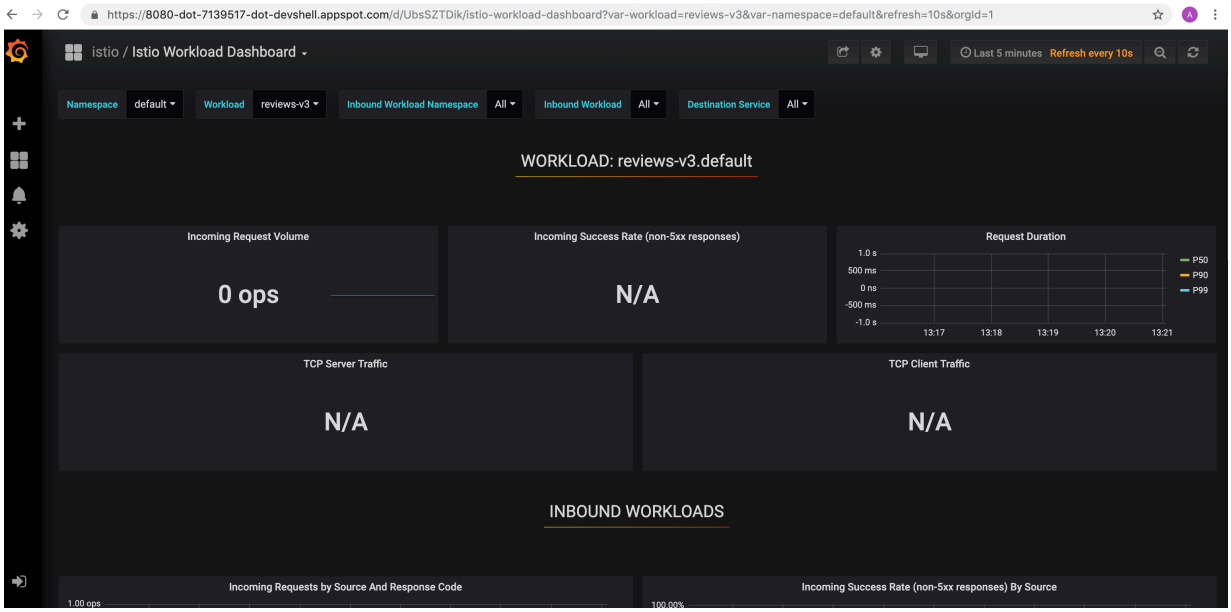



Refresh page

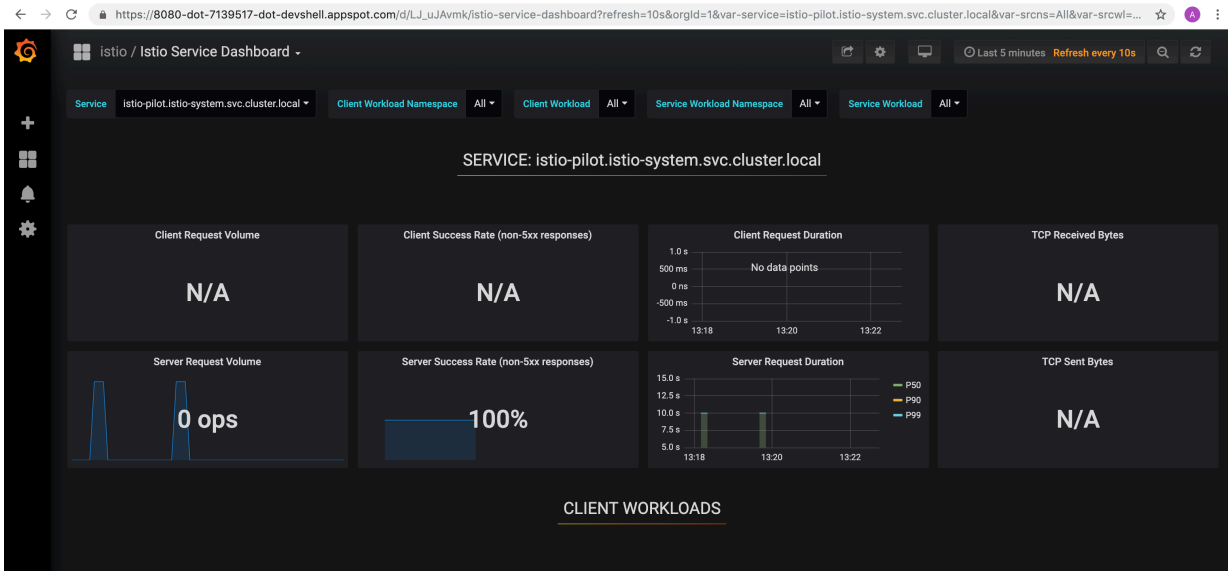


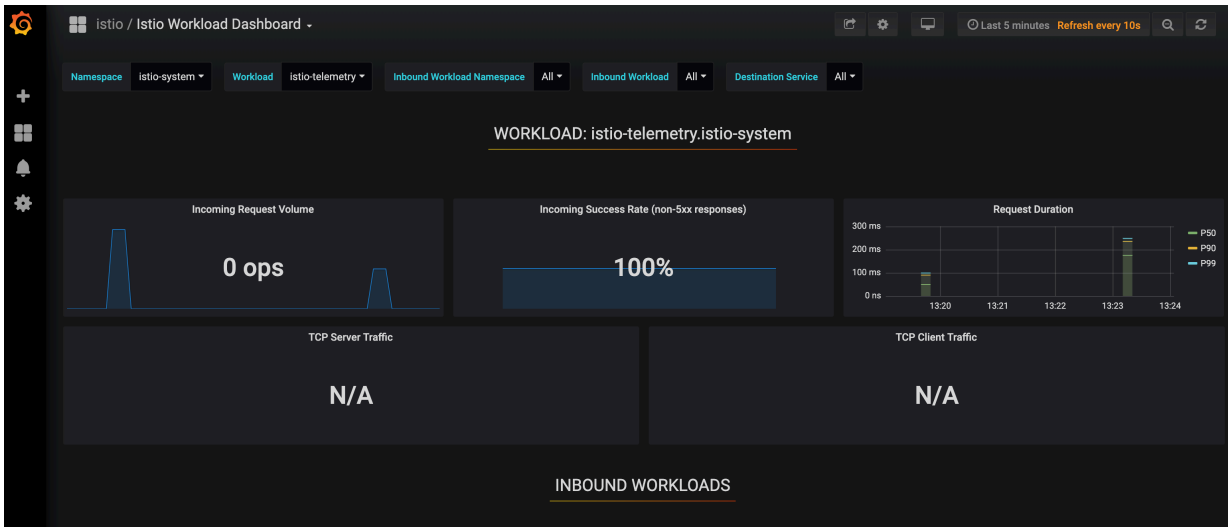

## Request workload




https://8080-dot-7139517-dot-devshell.appspot.com/dashboard/db/istio-service-dashboard




https://8080-dot-7139517-dot-devshell.appspot.com/dashboard/db/istio-workload-dashboard



https://istio.io/docs/tasks/telemetry/metrics/using-istio-dashboard/

1. A Mesh Summary View. This section provides Global Summary view of the Mesh and shows HTTP/gRPC and TCP workloads in the Mesh.

2. Individual Services View. This section provides metrics about requests and responses for each individual service within the mesh (HTTP/gRPC and TCP). This also provides metrics about client and service workloads for this service.

3. Individual Workloads View: This section provides metrics about requests and

responses for each individual workload within the mesh (HTTP/gRPC and TCP). This also provides metrics about inbound workloads and outbound services for this workload.

ISTIO / DOCS / TASKS / TRAFFIC MANAGEMENT

# Traffic Management

Tasks that demonstrate Istio's traffic routing features.

**Configuring Request Routing**
This task shows you how to configure dynamic request routing to multiple versions of a microservice.

**Fault Injection**
This task shows you how to inject faults to test the resiliency of your application.

**Traffic Shifting**
Shows you how to migrate traffic from an old to new version of a service.

**TCP Traffic Shifting**
Shows you how to migrate TCP traffic from an old to new version of a TCP service.

**Setting Request Timeouts**
This task shows you how to setup request timeouts in Envoy using Istio.

**Control Ingress Traffic**
Describes how to configure Istio to expose a service outside of the service mesh.

**Securing Ingress Gateway**
Secure ingress gateway controllers using various approaches.

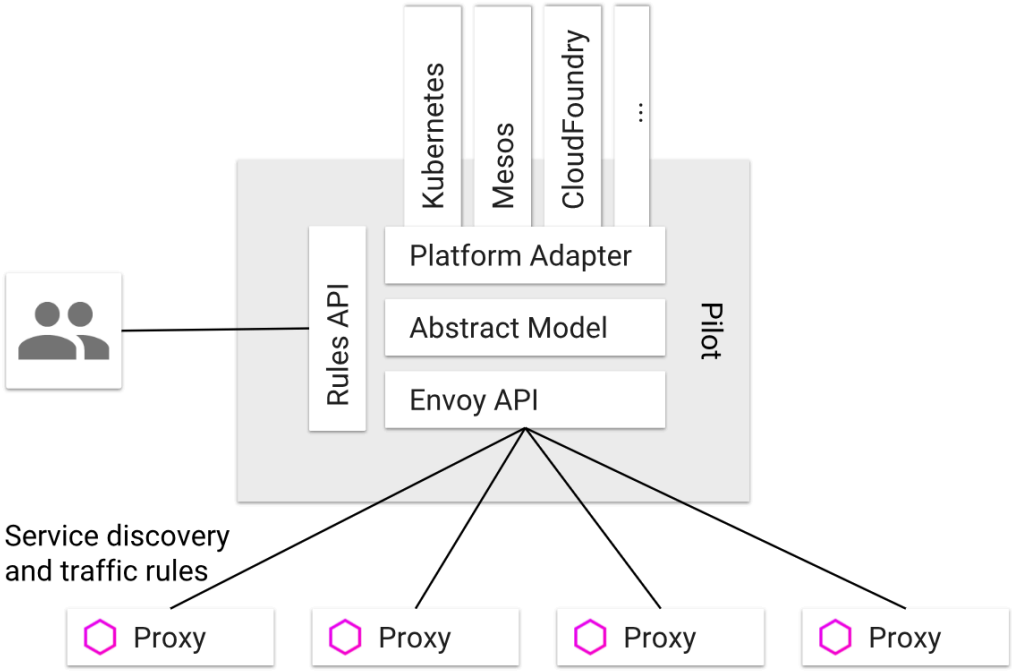
**Control Egress Traffic**
Describes how to configure Istio to route traffic from services in the mesh to external services.

**Circuit Breaking**
This task shows you how to configure circuit breaking for connections, requests, and outlier detection.

## Mirroring

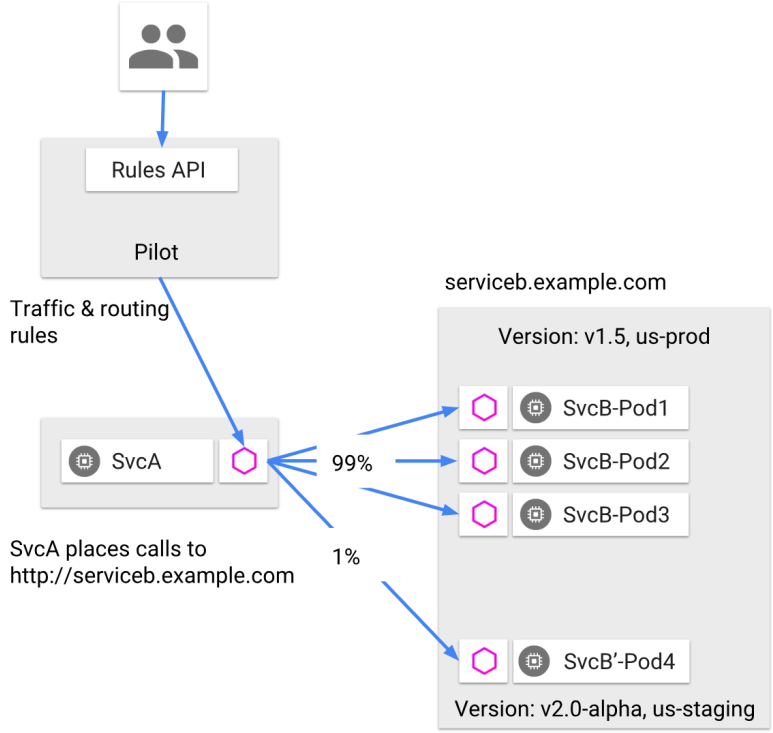
This task demonstrates the traffic mirroring/shadowing capabilities of Istio.

https://istio.io/docs/concepts/traffic-management/




*Pilot Architecture*

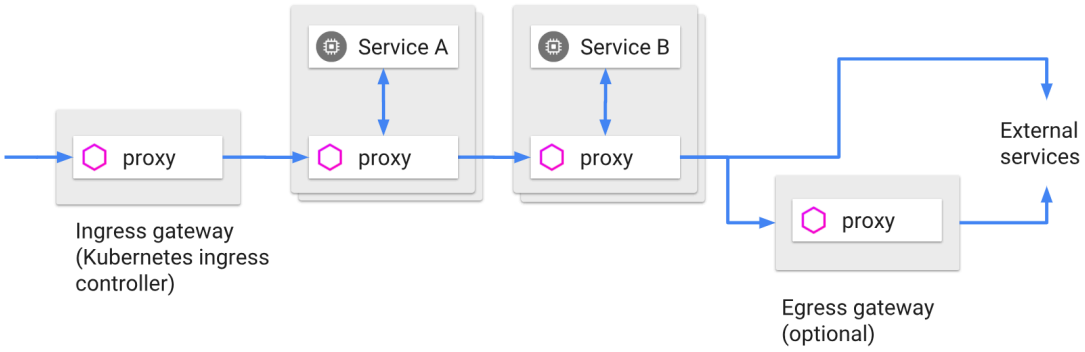
## Communication between services




*Service Versions*

### Ingress and egress

Istio assumes that all traffic entering and leaving the service mesh transits through Envoy proxies. By deploying an Envoy proxy in front of services, you can conduct A/B testing, deploy canary services, etc. for user-facing services. Similarly, by routing traffic to external web services (for instance, accessing a maps API or a video service API) via the Envoy sidecar, you can add failure recovery features such as timeouts, retries, and circuit breakers and obtain detailed metrics on the connections to these services.



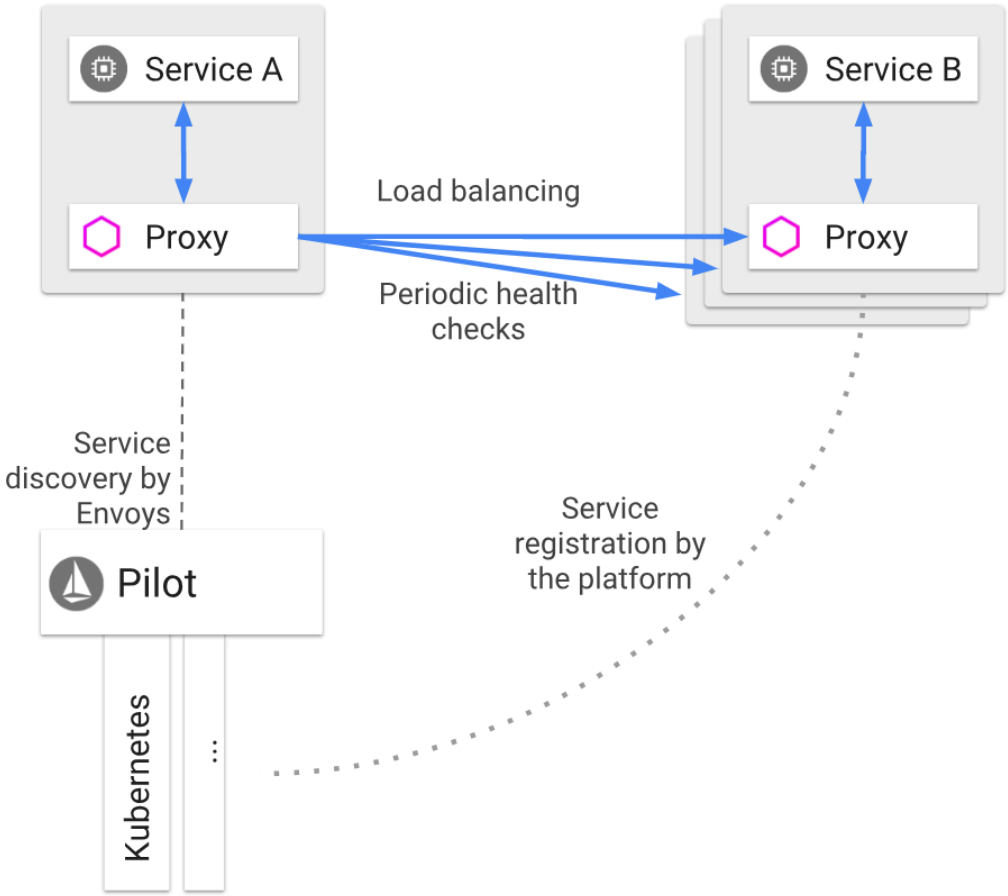

*Request Flow*

## Discovery and load balancing

Istio load balances traffic across instances of a service in a service mesh.

Istio assumes the presence of a service registry to keep track of the pods/VMs of a service in the application. It also assumes that new instances of a service are automatically registered with the service registry and unhealthy instances are automatically removed. Platforms such as Kubernetes and Mesos already provide such functionality for container-based applications, and many solutions exist for VM-based applications.

Pilot consumes information from the service registry and provides a platform-independent service discovery interface. Envoy instances in the mesh perform service discovery and dynamically update their load balancing pools accordingly.




*Discovery and Load Balancing*

## TCP Traffic Shifting

4 MINUTE READ

This task shows you how to gradually migrate TCP traffic from one version of a microservice to another. For example, you might migrate TCP traffic from an older version to a new version.

A common use case is to migrate TCP traffic gradually from one version of a microservice to another. In Istio, you accomplish this goal by configuring a sequence of rules that route a percentage of TCP traffic to one service or another. In this task, you will send 100% of the TCP traffic to tcp-echo:v1. Then, you will route 20% of the TCP traffic to tcp-echo:v2 using Istio's weighted routing feature.