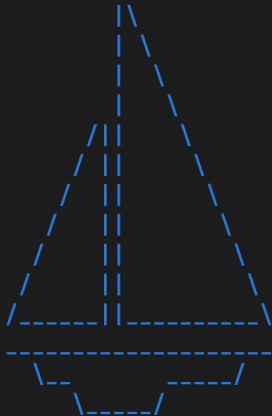


# Lab5 Notes/Findings

## Step1: Initial Setup for a clean Kubernetes Cluster:

```
kacper@UNKNOWN:~/istio-1.26.0$ minikube start --driver=docker --cpus=2 --memory=4096
🐳 minikube v1.35.0 on Fedora 42
🔧 Using the docker driver based on user configuration
🔧 Using Docker driver with root privileges
👉 Starting "minikube" primary control-plane node in "minikube" cluster
📡 Pulling base image v0.0.46 ...
📦 Downloading Kubernetes v1.32.0 preload ...
> preloaded-images-k8s-v18-v1...: 333.57 MiB / 333.57 MiB 100.00% 14.27 M
🔥 Creating docker container (CPUs=2, Memory=4096MB) ...
🔧 Preparing Kubernetes v1.32.0 on Docker 27.4.1 ...
  ▪ Generating certificates and keys ...
  ▪ Booting up control plane ...
  ▪ Configuring RBAC rules ...
🔗 Configuring bridge CNI (Container Networking Interface) ...
🔧 Verifying Kubernetes components...
  ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🌟 Enabled addons: storage-provisioner, default-storageclass
👉 Done! kubectl is now configured to use "minikube" cluster and "default" namespace
kacper@UNKNOWN:~/istio-1.26.0$ kubectl version --client
Client Version: v1.33.0
Kustomize Version: v5.6.0
kacper@UNKNOWN:~/istio-1.26.0$ kubectl get nodes
NAME          STATUS    ROLES          AGE    VERSION
minikube      Ready     control-plane   18s    v1.32.0
kacper@UNKNOWN:~/istio-1.26.0$
```

```
kacper@UNKNOWN:~/istio-1.26.0$ istioctl install --set profile=demo -y
```

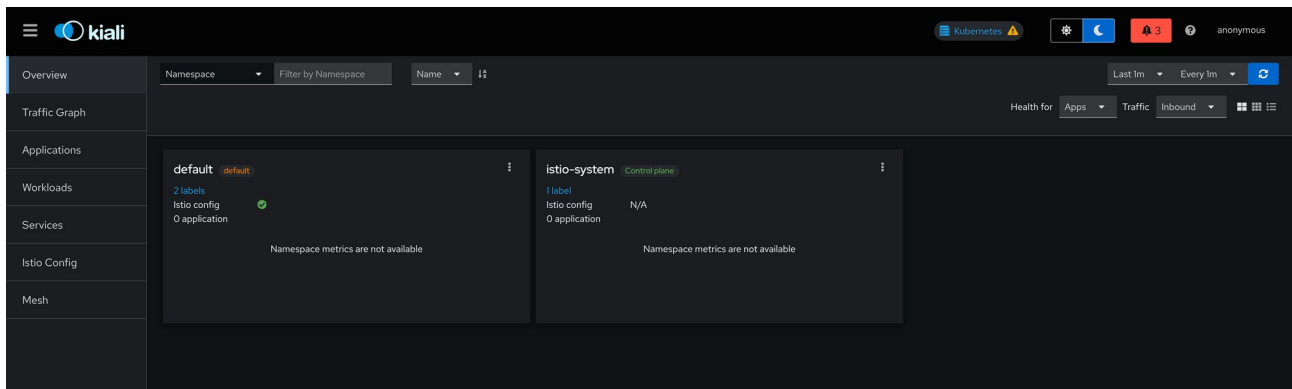


```
✓ Istio core installed 🚢
✓ Istiod installed 🧠
✓ Ingress gateways installed 🚢
✓ Egress gateways installed 🚢
✓ Installation complete
```

## Step2: Minikube instance set:

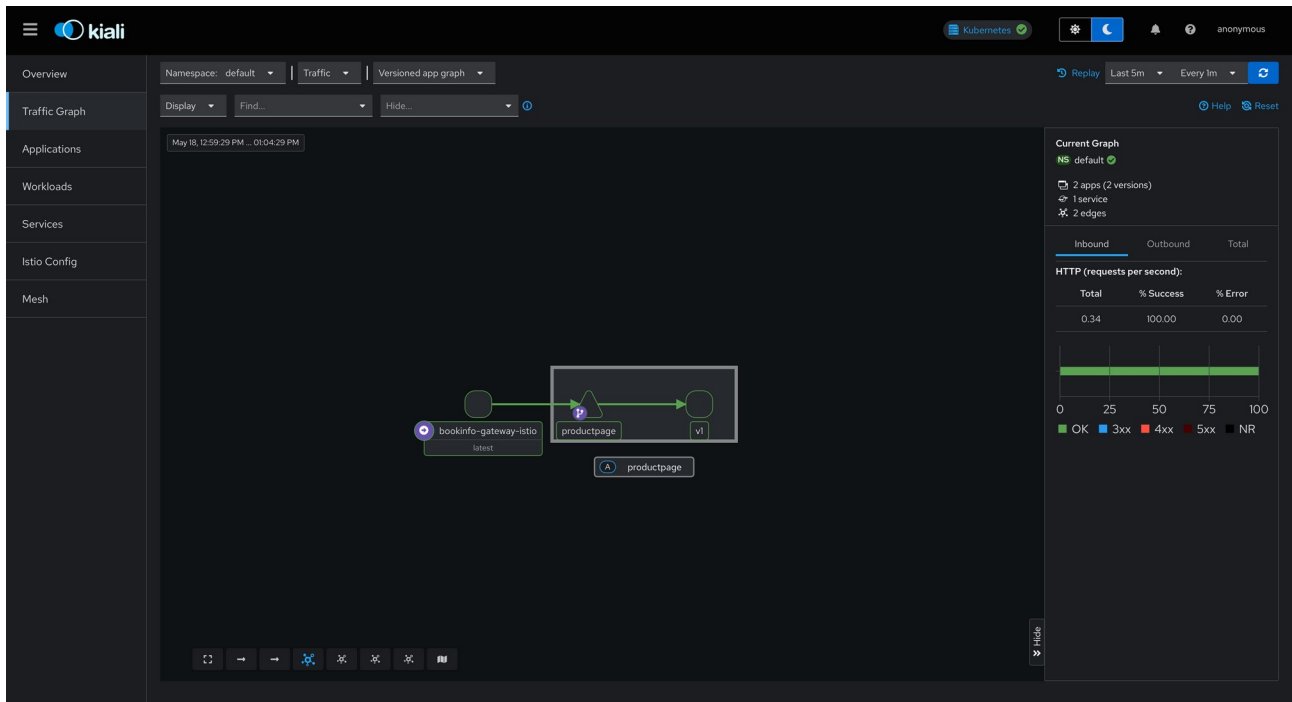
```
kacper@UNKNOWN:~/istio-1.26.0$ kubectl get gateway bookinfo-gateway
NAME          CLASS    ADDRESS          PROGRAMMED    AGE
bookinfo-gateway  istio    10.96.224.24     True          6m2s
kacper@UNKNOWN:~/istio-1.26.0$ ADDR=$(kubectl get gateway bookinfo-gateway -o jsonpath='{.status.addresses[0].value}')
curl -I -H "Host: bookinfo.example.com" "http://${ADDR}/productpage"
HTTP/1.1 200 OK
server: istio-envoy
date: Sat, 17 May 2025 10:54:01 GMT
content-type: text/html; charset=utf-8
content-length: 15068
vary: Cookie
x-envoy-upstream-service-time: 390
```

## Step3: Kiali Dashboard Setup:

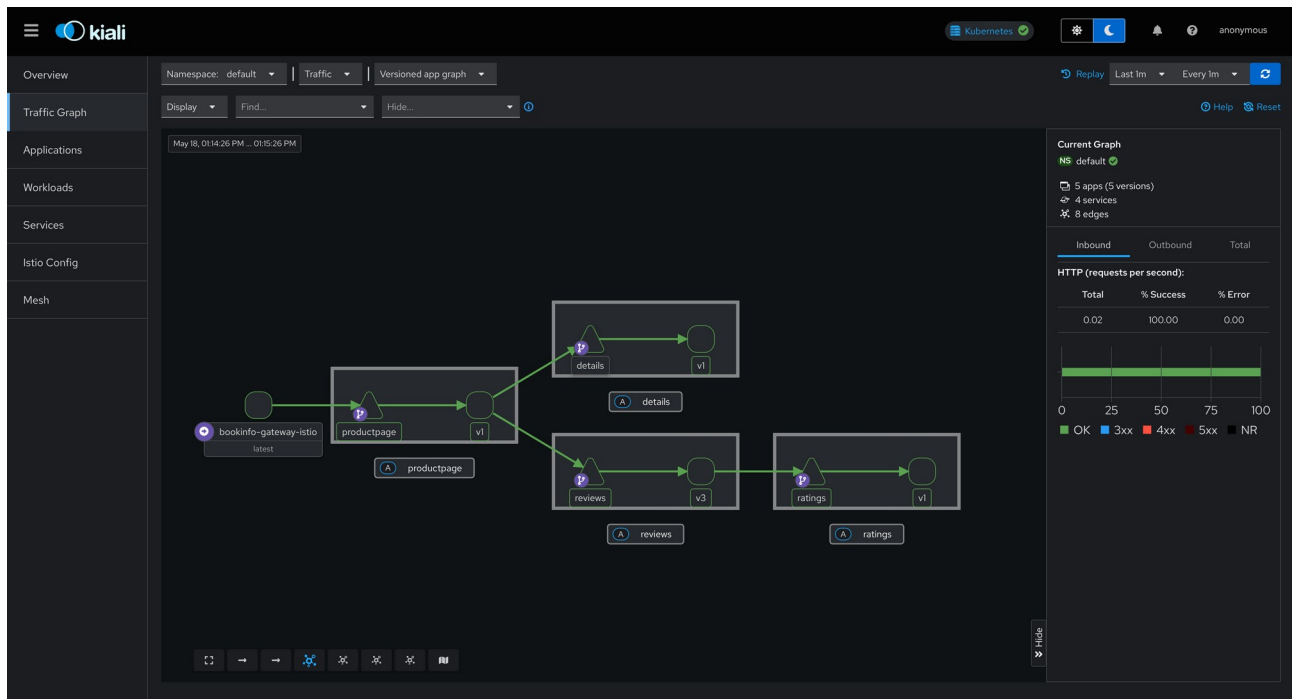


## Step4 Generate some traffic:

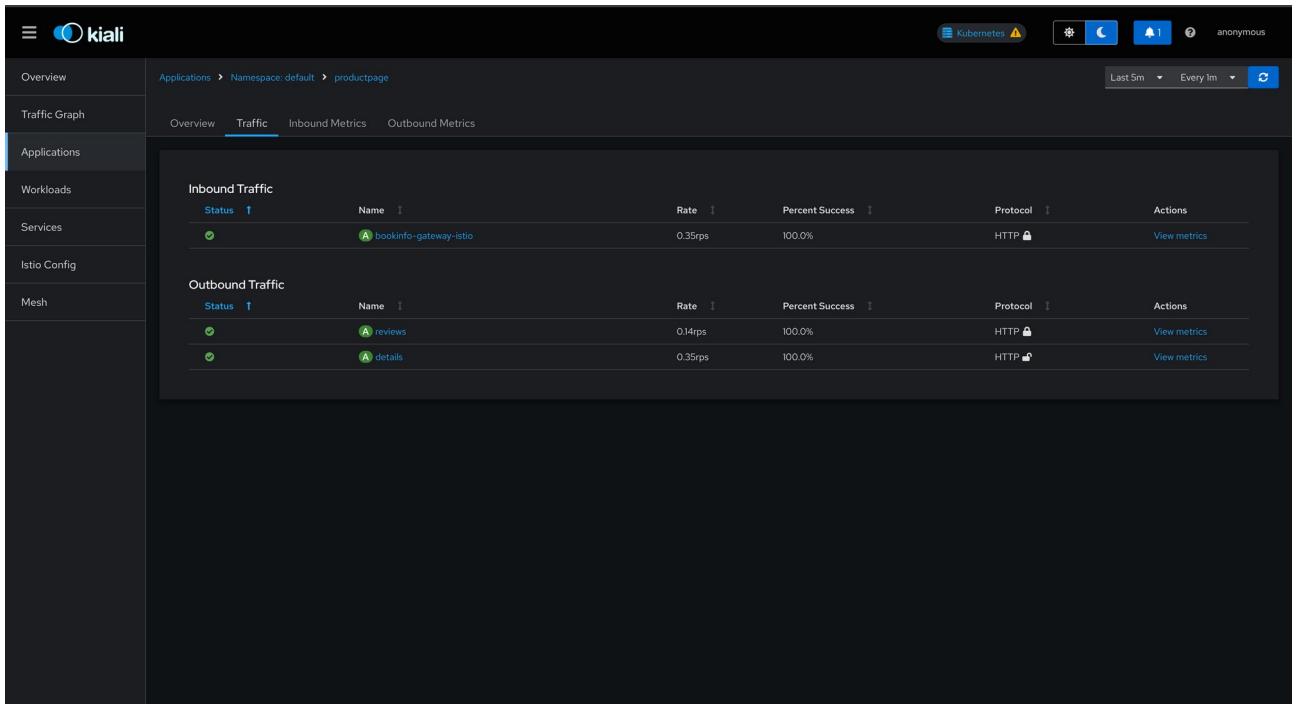
```
kacper@UNKNOWN:~/istio-1.26.0$ for i in {1..100}; do
  curl -s -o /dev/null -H "Host: bookinfo.example.com" \
    "http://${ADDR}/productpage" &
done
wait
[1] 29091
[2] 29092
[3] 29093
[4] 29094
[5] 29095
[6] 29096
[7] 29097
[8] 29098
[9] 29099
[10] 29100
[11] 29101
```



```
kacper@UNKNOWN:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/networking/virtual-service-reviews-test-v2.yaml
curl -s -H "Cookie: user=jason" http://${ADDR}/productpage | grep "reviews v2"
curl -s http://${ADDR}/productpage | grep "reviews v3"
virtualservice.networking.istio.io/reviews configured
```



```
kacper@UNKNOWN:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/networking/virtual-service-reviews-50-v3.yaml
virtualservice.networking.istio.io/reviews unchanged
kacper@UNKNOWN:~/istio-1.26.0$ for i in {1..100}; do
  curl -s -o /dev/null -H "Host: bookinfo.example.com" \
    http://${ADDR}/productpage &
done
wait
sleep 20
[1] 121626
```



## Step5: Fault Injection:

```
kacper@UNKNOWN:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/networking/virtual-service-ratings-test-delay.yaml
time curl -H "Cookie: user=jason" -o /dev/null -s http://${ADDR}/productpage
virtualservice.networking.istio.io/ratings created

real    0m3.732s
user    0m0.006s
sys     0m0.004s
kacper@UNKNOWN:~/istio-1.26.0$
```

## Step6: Abort with HTTP 500 for jason:

```
kacper@UNKNOWN:~/istio-1.26.0$ kubectl apply -f ./samples/bookinfo/networking/virtual-service-ratings-test-abort.yaml
curl -I -H "Cookie: user=jason" http://${ADDR}/productpage
virtualservice.networking.istio.io/ratings unchanged
HTTP/1.1 200 OK
server: istio-envoy
date: Sun, 18 May 2025 15:35:37 GMT
content-type: text/html; charset=utf-8
content-length: 9429
vary: Cookie
x-envoy-upstream-service-time: 72
```

## Step7: Circuit Breaking:

```
kacper@UNKNOWN:~/istio-1.26.0$ cat <<'EOF' | kubectl apply -f -
apiVersion: networking.istio.io/v1alpha3
kind: DestinationRule
metadata:
  name: productpage-cb
spec:
  host: productpage
  trafficPolicy:
    connectionPool:
      http:
        http1MaxPendingRequests: 1
        maxRequestsPerConnection: 1
    outlierDetection:
      consecutive5xxErrors: 2
      interval: 5s
      baseEjectionTime: 30s
EOF
destinationrule.networking.istio.io/productpage-cb created
kacper@UNKNOWN:~/istio-1.26.0$ for i in {1..30}; do
  curl -s -o /dev/null -w "%{http_code}\n" http://${ADDR}/productpage &
done
wait
[2] 127012
[3] 127013
[4] 127014
[5] 127015
[6] 127016
[7] 127017
```

