

Lab 5

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Traffic Shifting

Apply weight-based routing

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/networking/virtual-service-all-v1.yaml
virtualservice.networking.istio.io/productpage created
virtualservice.networking.istio.io/reviews created
virtualservice.networking.istio.io/ratings created
virtualservice.networking.istio.io/details created
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/networking/virtual-service-reviews-v3-v1.yaml
virtualservice.networking.istio.io/reviews configured
qadeer@QHVictus:~/istio-1.26.0$ kubectl get virtualservice reviews -o yaml
apiVersion: networking.istio.io/v1
kind: VirtualService
metadata:
  annotations:
  kubectrl.kubernetes.io/last-applied-configuration: |
    {"apiVersion": "networking.istio.io/v1", "kind": "VirtualService", "metadata": {"annotations": {}, "name": "reviews", "namespace": "default"}, "spec": {"hosts": ["reviews"], "http": [{"route": [{"destination": {"host": "reviews", "subset": "v1"}, "weight": 90}, {"destination": {"host": "reviews", "subset": "v2"}, "weight": 10}]}]}}
    creationTimestamp: "2025-05-16T23:48:30Z"
  generation: 2
  name: reviews
  namespace: default
  resourceVersion: "1829"
  uid: ab0499cd-1a85-4993-8696-31e0b65f7977
spec:
  hosts:
  - reviews
  http:
  - route:
    - destination:
        host: reviews
        subset: v1
        weight: 90
    - destination:
        host: reviews
        subset: v2
        weight: 10
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/networking/virtual-service-reviews-v3.yaml
virtualservice.networking.istio.io/reviews configured
```

Clean Up

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl delete -f samples/bookinfo/networking/virtual-service-all-v1.yaml
virtualservice.networking.istio.io "productpage" deleted
virtualservice.networking.istio.io "reviews" deleted
virtualservice.networking.istio.io "ratings" deleted
virtualservice.networking.istio.io "details" deleted
```

Request Routing

Route to version 1

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/networking/virtual-service-all-v1.yaml
virtualservice.networking.istio.io/productpage created
virtualservice.networking.istio.io/reviews created
virtualservice.networking.istio.io/ratings created
virtualservice.networking.istio.io/details created
```

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl get virtualservices -o yaml
apiVersion: v1
items:
- apiVersion: networking.istio.io/v1
  kind: VirtualService
  metadata:
    annotations:
    kubectrl.kubernetes.io/last-applied-configuration: |
      {"apiVersion": "networking.istio.io/v1", "kind": "VirtualService", "metadata": {"annotations": {}, "name": "details", "namespace": "default"}, "spec": {"hosts": ["details"], "http": [{"route": [{"destination": {"host": "details", "subset": "v1"}}]}]}}
      creationTimestamp: "2025-05-16T23:56:56Z"
    generation: 1
    name: details
    namespace: default
    resourceVersion: "8635"
    uid: f2c7362b-0b19-408e-9700-b671d3dc11d3
  spec:
    hosts:
    - details
    http:
    - route:
      - destination:
          host: details
          subset: v1
- apiVersion: networking.istio.io/v1
  kind: VirtualService
  metadata:
    annotations:
    kubectrl.kubernetes.io/last-applied-configuration: |
      {"apiVersion": "networking.istio.io/v1", "kind": "VirtualService", "metadata": {"annotations": {}, "name": "productpage", "namespace": "default"}, "spec": {"hosts": ["productpage"], "http": [{"route": [{"destination": {"host": "productpage", "subset": "v1"}}]}]}}
      creationTimestamp: "2025-05-16T23:56:56Z"
    generation: 1
    name: productpage
    namespace: default
    resourceVersion: "8635"
    uid: fffaa775-5199-4a4c-91fc-87fa2d6d879
  spec:
    hosts:
    - productpage
    http:
    - route:
      - destination:
          host: productpage
          subset: v1
- apiVersion: networking.istio.io/v1
  kind: VirtualService
  metadata:
    annotations:
    kubectrl.kubernetes.io/last-applied-configuration: |
      {"apiVersion": "networking.istio.io/v1", "kind": "VirtualService", "metadata": {"annotations": {}, "name": "ratings", "namespace": "default"}, "spec": {"hosts": ["ratings"], "http": [{"route": [{"destination": {"host": "ratings", "subset": "v1"}}]}]}}
      creationTimestamp: "2025-05-16T23:56:56Z"
    generation: 1
    name: ratings
    namespace: default
    resourceVersion: "8637"
    uid: 61c911a3-846c-40f2-b67-6348d86d6d4a
  spec:
    hosts:
    - ratings
    http:
    - route:
      - destination:
          host: ratings
          subset: v1
- apiVersion: networking.istio.io/v1
  kind: VirtualService
  metadata:
    annotations:
    kubectrl.kubernetes.io/last-applied-configuration: |
      {"apiVersion": "networking.istio.io/v1", "kind": "VirtualService", "metadata": {"annotations": {}, "name": "reviews", "namespace": "default"}, "spec": {"hosts": ["reviews"], "http": [{"route": [{"destination": {"host": "reviews", "subset": "v1"}}]}]}}
      creationTimestamp: "2025-05-16T23:56:56Z"
```

```

creationTimestamp: "2025-05-16T23:55:55Z"
generation: 1
name: reviews
namespace: default
resourceVersion: "4436"
uid: d97fd110-d5d3-4cdd-8791-17bac4d8b3ba
spec:
  hosts:
  - reviews
  http:
  - route:
      destination:
        host: reviews
        subset: v1
kind: List
metadata:
  resourceVersion: ""

```

```

qadeer@QHVictus:~/istio-1.26.0$ kubectl get destinationrules -o yaml
apiVersion: v1
items: []
kind: List
metadata:
  resourceVersion: ""

```

Route based on user identity

```

qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/networking/virtual-service-reviews-test-v1.yaml
virtualservice.networking.istio.io/reviews configured
qadeer@QHVictus:~/istio-1.26.0$ kubectl get virtualservice reviews -o yaml
apiVersion: networking.istio.io/v1
kind: VirtualService
metadata:
  annotations:
    kubectl.kubernetes.io/last-applied-configuration: |
      {"apiVersion": "networking.istio.io/v1", "kind": "VirtualService", "metadata": {"annotations": {}, "name": "reviews", "namespace": "default"}, "spec": {"hosts": ["reviews"], "http": [{"match": [{"headers": {"end-user": {"exact": "jason"}}}], "route": [{"destination": {"host": "reviews", "subset": "v2"}}]}]}
      {"apiVersion": "networking.istio.io/v1", "kind": "VirtualService", "metadata": {"annotations": {}, "name": "reviews", "namespace": "default"}, "spec": {"hosts": ["reviews"], "http": [{"match": [{"headers": {"end-user": {"exact": "jason"}}}], "route": [{"destination": {"host": "reviews", "subset": "v2"}}]}]}
  creationTimestamp: "2025-05-16T23:55:55Z"
  generation: 2
  name: reviews
  namespace: default
  resourceVersion: "4608"
  uid: d97fd110-d5d3-4cdd-8791-17bac4d8b3ba
spec:
  hosts:
  - reviews
  http:
  - match:
      - end-user:
          exact: jason
      route:
      - destination:
          host: reviews
          subset: v2
  - route:
      destination:
        host: reviews
        subset: v1

```

```

qadeer@QHVictus:~/istio-1.26.0$ kubectl delete -f samples/bookinfo/networking/virtual-service-all-v1.yaml
virtualservice.networking.istio.io "productpage" deleted
virtualservice.networking.istio.io "reviews" deleted
virtualservice.networking.istio.io "ratings" deleted
virtualservice.networking.istio.io "details" deleted

```

Fault Injection

Before you begin

```

qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/networking/virtual-service-all-v1.yaml
kubectl apply -f samples/bookinfo/networking/virtual-service-reviews-test-v2.yaml
virtualservice.networking.istio.io/productpage created
virtualservice.networking.istio.io/reviews created
virtualservice.networking.istio.io/ratings created
virtualservice.networking.istio.io/details created
virtualservice.networking.istio.io/reviews configured

```

Injecting an HTTP delay fault

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/networking/virtual-service-ratings-test-delay.yaml
virtualservice.networking.istio.io/ratings configured
qadeer@QHVictus:~/istio-1.26.0$ kubectl get virtualservice ratings -o yaml
apiVersion: networking.istio.io/v1
kind: VirtualService
metadata:
  annotations:
    kubectl.kubernetes.io/last-applied-configuration: |
      {"apiVersion": "networking.istio.io/v1", "kind": "VirtualService", "metadata": {"annotations": {}, "name": "ratings", "namespace": "default"}, "spec": {"hosts": ["ratings"], "http": [{"fault": {"delay": {"fixedDelay": "7s", "percentage": {"value": 100}}}, "match": [{"headers": {"end-user": {"exact": "jason"}}}], "route": [{"destination": {"host": "ratings", "subset": "v1"}}]}, {"route": [{"destination": {"host": "ratings", "subset": "v1"}}]}]}}}
  creationTimestamp: "2025-05-17T08:11:02Z"
  generation: 2
  name: ratings
  namespace: default
  resourceVersion: "5637"
  uid: cffe8f23-602f-4965-81bb-8d82ae76eeb2
spec:
  hosts:
  - ratings
  http:
  - fault:
      delay:
        fixedDelay: 7s
        percentage:
          value: 100
      match:
      - headers:
          end-user:
            exact: jason
      route:
      - destination:
          host: ratings
          subset: v1
      - route:
          destination:
            host: ratings
            subset: v1
```

Injecting an HTTP abort fault

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/networking/virtual-service-ratings-test-abort.yaml
virtualservice.networking.istio.io/ratings configured
qadeer@QHVictus:~/istio-1.26.0$ kubectl get virtualservice ratings -o yaml
apiVersion: networking.istio.io/v1
kind: VirtualService
metadata:
  annotations:
    kubectl.kubernetes.io/last-applied-configuration: |
      {"apiVersion": "networking.istio.io/v1", "kind": "VirtualService", "metadata": {"annotations": {}, "name": "ratings", "namespace": "default"}, "spec": {"hosts": ["ratings"], "http": [{"fault": {"abort": {"httpStatus": 500, "percentage": {"value": 100}}}, "match": [{"headers": {"end-user": {"exact": "jason"}}}], "route": [{"destination": {"host": "ratings", "subset": "v1"}}]}, {"route": [{"destination": {"host": "ratings", "subset": "v1"}}]}]}}}
  creationTimestamp: "2025-05-17T08:11:02Z"
  generation: 3
  name: ratings
  namespace: default
  resourceVersion: "5693"
  uid: cffe8f23-602f-4965-81bb-8d82ae76eeb2
spec:
  hosts:
  - ratings
  http:
  - fault:
      abort:
        httpStatus: 500
        percentage:
          value: 100
      match:
      - headers:
          end-user:
            exact: jason
      route:
      - destination:
          host: ratings
          subset: v1
      - route:
          destination:
            host: ratings
            subset: v1
```

Clean Up

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl delete -f samples/bookinfo/networking/virtual-service-all-v1.yaml
virtualservice.networking.istio.io "productpage" deleted
virtualservice.networking.istio.io "reviews" deleted
virtualservice.networking.istio.io "ratings" deleted
virtualservice.networking.istio.io "details" deleted
```

Circuit Breaking

Before you begin

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/httpbin/httpbin.yaml
serviceaccount/httpbin created
service/httpbin created
deployment.apps/httpbin created
```

Configuring the circuit breaker

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f <cat
apiVersion: networking.istio.io/v1
kind: DestinationRule
metadata:
  name: httpbin
spec:
  host: httpbin
  trafficPolicy:
    connectionPool:
      tcp:
        maxConnections: 1
      http:
        httpMaxPendingRequests: 1
        maxRequestsPerConnection: 1
    outlierDetection:
      consecutiveErrors: 1
      interval: 1s
      baseEjectionTime: 30s
      maxEjectionPercent: 100
---
destinationrule.networking.istio.io/httpbin created
qadeer@QHVictus:~/istio-1.26.0$ kubectl get destinationrule httpbin -o yaml
apiVersion: networking.istio.io/v1
kind: DestinationRule
metadata:
  annotations:
    kubectl.kubernetes.io/last-applied-configuration: |
      {"apiVersion":"networking.istio.io/v1","kind":"DestinationRule","metadata":{"annotations":{"name":"httpbin","namespace":"default"},"spec":{"host":"httpbin","trafficPolicy":{"connectionPool":{"http":{"httpMaxPendingRequests":1,"maxRequestsPerConnection":1},"tcp
      creationTimestamp":"2025-05-17T09:16:40Z"}
    generation: 1
    name: httpbin
    namespace: default
    resourceVersion: "43321"
    uid: cd7995d4-4013-463d-818a-1c18a6ddda19
  spec:
    host: httpbin
    trafficPolicy:
      connectionPool:
        http:
          httpMaxPendingRequests: 1
          maxRequestsPerConnection: 1
        tcp:
          maxConnections: 1
      outlierDetection:
        baseEjectionTime: 30s
        consecutiveErrors: 1
        interval: 1s
        maxEjectionPercent: 100
```

Adding a client

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/httpbin/sample-client/fortio-deploy.yaml
service/fortio created
deployment.apps/fortio-deploy created
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f <(istioctl kube-inject -f samples/httpbin/sample-client/fortio-deploy.yaml)
service/fortio unchanged
deployment.apps/fortio-deploy configured
qadeer@QHVictus:~/istio-1.26.0$ export FORTIO_POD=$(kubectl get pods -l app=fortio -o 'jsonpath={.items[0].metadata.name}')
qadeer@QHVictus:~/istio-1.26.0$ kubectl exec "$FORTIO_POD" -c fortio -- /usr/bin/fortio curl -quiet http://httpbin:8080/get
{
  "args": {},
  "headers": {
    "Host": [
      "httpbin:8080"
    ],
    "User-Agent": [
      "Fortio.org/fortio-1.66.5"
    ],
    "X-Envoy-Attempt-Count": [
      "1"
    ],
    "X-Forwarded-Client-Cert": [
      "By:spiffe://cluster.local/ns/default/sa/httpbin;Hash=1ced869c5c292da5bddf2e8907724d779cb52b5119c8704bcfaf9706fee27f44;Subject=\"\";URI=spiffe://cluster.local/ns/default/sa/default"
    ],
    "X-Forwarded-Proto": [
      "http"
    ],
    "X-Request-Id": [
      "0eddb554-3447-9957-9a66-03a81808fcac"
    ]
  },
  "method": "GET",
  "origin": "127.0.0.6:56403",
  "url": "http://httpbin:8080/get"
}
HTTP/1.1 200 OK
access-control-allow-credentials: true
access-control-allow-origin: *
content-type: application/json; charset=utf-8
date: Sat, 17 May 2025 09:25:17 GMT
content-length: 621
x-envoy-upstream-service-time: 163
server: envoy
```

Tripping the circuit breaker

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
bookinfo-gateway-istio-7c766f6fc5-6ksn4   1/1     Running   0           62m
details-v1-766844796b-2fvqm              2/2     Running   0           66m
fortio-deploy-7ff9774c4c-wtcn8            2/2     Running   0           2m12s
httpbin-686d6fc899-hmp9g                 2/2     Running   0           11m
productpage-v1-54bb874995-fp6dw           2/2     Running   0           66m
ratings-v1-5dc79b6bcd-4cwms              2/2     Running   0           66m
reviews-v1-598b896c9d-pwb5h              2/2     Running   0           66m
reviews-v2-556d6457d-dsnc9               2/2     Running   0           66m
reviews-v3-564544b4d6-mvckt              2/2     Running   0           66m
```

```

qadeer@QHVictus:~/istio-1.26.0$ export FORTIO_POD=fortio-deploy-7ff9774c4c-wtcn8
qadeer@QHVictus:~/istio-1.26.0$ kubectl exec "$FORTIO_POD" -c fortio -- /usr/bin/fortio load -c 2 -qps 0 -n 20 --loglevel Warning http://httpbin:8000/get
{"ts":1747441995.016282,"level":"info","r":1,"file":"logger.go","line":290,"msg":"Log level is now 3 Warning (was 2 Info)"}
Fortio 1.66.5 running at 0 queries per second, 12->12 proc, for 20 calls: http://httpbin:8000/get
Starting at max qps with 2 thread(s) [qpsmax 12] for exactly 20 calls (10 per thread + 0)
{"ts":1747441995.116888,"level":"warn","r":11,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747441995.118775,"level":"warn","r":12,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747441995.119885,"level":"warn","r":11,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747441995.120491,"level":"warn","r":12,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747441995.121224,"level":"warn","r":11,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747441995.121246,"level":"warn","r":12,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747441995.122339,"level":"warn","r":12,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747441995.123519,"level":"warn","r":11,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747441995.124910,"level":"warn","r":12,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747441995.125117,"level":"warn","r":11,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747441995.126152,"level":"warn","r":12,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747441995.126320,"level":"warn","r":11,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747441995.127548,"level":"warn","r":11,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747441995.127802,"level":"warn","r":12,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747441995.129129,"level":"warn","r":12,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747441995.129327,"level":"warn","r":11,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747441995.130528,"level":"warn","r":12,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747441995.130530,"level":"warn","r":11,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747441995.132204,"level":"warn","r":11,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
Ended after 105.086648ms : 20 calls. qps=190.32
Aggregated Fuction Times : count 20 avg 0.010260515 +/- 0.02561 min 0.000740124 max 0.088508028 sum 0.205210296
# range, mid point, percentile, count
>= 0.000740124 <= 0.001 , 0.000870062 , 5.00, 1
> 0.001 <= 0.002 , 0.0015 , 70.00, 13
> 0.002 <= 0.003 , 0.0025 , 80.00, 2
> 0.003 <= 0.004 , 0.0035 , 90.00, 2
> 0.08 <= 0.088508 , 0.084254 , 100.00, 2
# target 50% 0.00169231
# target 75% 0.0025
# target 90% 0.004
# target 99% 0.0076572
# target 99.9% 0.0084229
Error cases : count 19 avg 0.0062944205 +/- 0.01939 min 0.000740124 max 0.088508028 sum 0.11959399
# range, mid point, percentile, count
>= 0.000740124 <= 0.001 , 0.000870062 , 5.26, 1
> 0.001 <= 0.002 , 0.0015 , 73.68, 13
> 0.002 <= 0.003 , 0.0025 , 84.21, 2
> 0.003 <= 0.004 , 0.0035 , 94.74, 2
> 0.08 <= 0.088508 , 0.084254 , 100.00, 1
# target 50% 0.00165385
# target 75% 0.002125
# target 90% 0.00355
# target 99% 0.0068915
# target 99.9% 0.0083464
# Socket and IP used for each connection:
[0] 10 socket used, resolved to 10.102.243.92:8000, connection timing : count 10 avg 0.0001828507 +/- 5.849e-05 min 0.000100974 max 0.000293022 sum 0.001828507
[1] 9 socket used, resolved to 10.102.243.92:8000, connection timing : count 9 avg 0.00017634267 +/- 2.27e-05 min 0.000147256 max 0.000210402 sum 0.001587084
Connection time (s) : count 19 avg 0.00017976795 +/- 4.533e-05 min 0.000100974 max 0.000293022 sum 0.003415591
Sockets used: 19 (for perfect keepalive, would be 2)
Uniform: false, Jitter: false, Catchup allowed: true
IP addresses distribution:
10.102.243.92:8000: 19
Code 200 : 1 (5.0 %)
Code 503 : 19 (95.0 %)
Response Header Sizes : count 20 avg 12.3 +/- 53.61 min 0 max 246 sum 246
Response Body/Total Sizes : count 20 avg 194.85 +/- 156.5 min 153 max 867 sum 3897
All done 20 calls (plus 0 warmup) 10.261 ms avg, 190.3 qps

```

```

qadeer@QHVictus:~/istio-1.26.0$ kubectl exec $FORTIO_POD -c fortio -- /usr/bin/fortio load -c 3 -qps 0 -n 30 -loglevel Warning http://httpbin:8080/get
{"ts":1747442044.198987,"level":"info","r":1,"file":"logger.go","line":290,"msg":"Log level is now 3 Warning (was 2 Info)"}
Fortio 1.66.5 running at 0 queries per second, 12->12 procs, for 30 calls: http://httpbin:8080/get
Starting at max qps with 3 thread(s) [gomax 12] for exactly 30 calls (10 per thread + 0)
{"ts":1747442044.219721,"level":"warn","r":9,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747442044.219721,"level":"warn","r":9,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747442044.219770,"level":"warn","r":10,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":2,"run":0}
{"ts":1747442044.220633,"level":"warn","r":10,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747442044.220662,"level":"warn","r":9,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747442044.220804,"level":"warn","r":8,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747442044.221893,"level":"warn","r":10,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":2,"run":0}
{"ts":1747442044.222111,"level":"warn","r":9,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747442044.222127,"level":"warn","r":10,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747442044.223227,"level":"warn","r":10,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":2,"run":0}
{"ts":1747442044.223421,"level":"warn","r":9,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747442044.223421,"level":"warn","r":10,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747442044.224263,"level":"warn","r":8,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747442044.224648,"level":"warn","r":9,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
{"ts":1747442044.224650,"level":"warn","r":10,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":2,"run":0}
{"ts":1747442044.226513,"level":"warn","r":10,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747442044.226702,"level":"warn","r":10,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
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{"ts":1747442044.228222,"level":"warn","r":8,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
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{"ts":1747442044.229366,"level":"warn","r":10,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747442044.229531,"level":"warn","r":9,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
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{"ts":1747442044.231403,"level":"warn","r":8,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":0,"run":0}
{"ts":1747442044.233709,"level":"warn","r":10,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":2,"run":0}
{"ts":1747442044.235046,"level":"warn","r":9,"file":"http_client.go","line":1151,"msg":"Non ok http code","code":503,"status":"HTTP/1.1 503","thread":1,"run":0}
Ended after 16.904593ms : 30 calls, qps=1775.7
Aggregated Function Time : count 30 avg 0.0015115028 +/- 0.0007842 min 0.00075344 max 0.004775032 sum 0.045345085
# range, mid point, percentile, count
> 0.00075344 <= 0.001 0.00087672 20.00, 6
> 0.001 <= 0.002 0.0015 86.67, 20
> 0.002 <= 0.003 0.0025 93.33, 2
> 0.003 <= 0.004 0.0035 96.67, 1
> 0.004 <= 0.00477503 0.00438752 100.00, 1
# target 50% 0.00145
# target 75% 0.001825
# target 90% 0.0025
# target 99% 0.00454252
# target 99.9% 0.00475178
Error cases : count 30 avg 0.0015115028 +/- 0.0007842 min 0.00075344 max 0.004775032 sum 0.045345085
# range, mid point, percentile, count
> 0.00075344 <= 0.001 0.00087672 20.00, 6
> 0.001 <= 0.002 0.0015 86.67, 20
> 0.002 <= 0.003 0.0025 93.33, 2
> 0.003 <= 0.004 0.0035 96.67, 1
> 0.004 <= 0.00477503 0.00438752 100.00, 1
# target 50% 0.00145
# target 75% 0.001825
# target 90% 0.0025
# target 99% 0.00454252
# target 99.9% 0.00475178
# Socket and IP used for each connection:
[0] 10 socket used, resolved to 10.102.243.92:8080, connection timing : count 10 avg 0.0001717237 +/- 6.758e-05 min 0.00010502 max 0.000290177 sum 0.001717237
[1] 10 socket used, resolved to 10.102.243.92:8080, connection timing : count 10 avg 0.00049849 +/- 0.001047 min 6.6571e-05 max 0.003633734 sum 0.0049849
[2] 10 socket used, resolved to 10.102.243.92:8080, connection timing : count 10 avg 0.0003471628 +/- 0.0006005 min 9.5966e-05 max 0.002142422 sum 0.003471628
Connection time (s) : count 30 avg 0.0003391255 +/- 0.0007105 min 6.6571e-05 max 0.003633734 sum 0.010173765
Sockets used: 30 (for perfect keepalive, would be 3)
Uniform: false, Jitter: false, Catchup allowed: true
IP addresses distribution:
10.102.243.92:8080: 30
Code 503 : 30 (100.0 %)
Response Header Sizes : count 30 avg 0 +/- 0 min 0 max 0 sum 0
Response Body/Total Sizes : count 30 avg 153 +/- 0 min 153 max 153 sum 4590
All done 30 calls (plus 0 warmup) 1.512 ms avg, 1775.7 qps

```

```

qadeer@QHVictus:~/istio-1.26.0$ kubectl exec $FORTIO_POD -c istio-proxy -- pilot-agent request curl stats | grep httpbin | grep pending
cluster.outbound|8080||httpbin.default.svc.cluster.local; circuit_breakers.default.remaining_pending: 1
cluster.outbound|8080||httpbin.default.svc.cluster.local; circuit_breakers.default.rq_pending_open: 0
cluster.outbound|8080||httpbin.default.svc.cluster.local; circuit_breakers.high.rq_pending_open: 0
cluster.outbound|8080||httpbin.default.svc.cluster.local; upstream_rq_pending_active: 0
cluster.outbound|8080||httpbin.default.svc.cluster.local; upstream_rq_pending_failure_eject: 0
cluster.outbound|8080||httpbin.default.svc.cluster.local; upstream_rq_pending_overflow: 0
cluster.outbound|8080||httpbin.default.svc.cluster.local; upstream_rq_pending_total: 2

```

Clean Up

```

qadeer@QHVictus:~/istio-1.26.0$ kubectl delete destinationrule httpbin
destinationrule.networking.istio.io "httpbin" deleted
qadeer@QHVictus:~/istio-1.26.0$ ^C
qadeer@QHVictus:~/istio-1.26.0$ kubectl delete -f samples/httpbin/sample-client/fortio-deploy.yaml
kubectl delete -f samples/httpbin/httpbin.yaml
service "fortio" deleted
deployment.apps "fortio-deploy" deleted
serviceaccount "httpbin" deleted
service "httpbin" deleted
deployment.apps "httpbin" deleted

```