

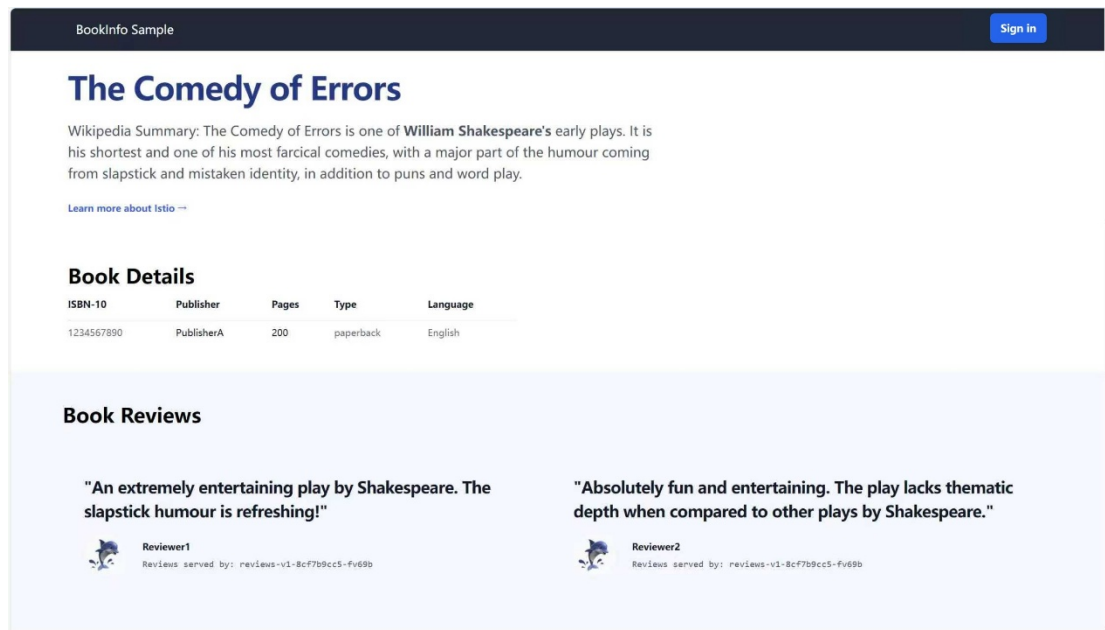
## Traffic Shifting

### Apply weight-based routing

route all traffic to the v1 version

```
PS D:\istio\istio-1.27.2-win\istio-1.27.2> 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
```

Open the Bookinfo site



Transfer 50% of the traffic from reviews:v1 to reviews:v3

```
PS D:\istio\istio-1.27.2-win\istio-1.27.2> kubectl apply -f samples/bookinfo/networking/virtual-service-reviews-50-v3.yaml
virtualservice.networking.istio.io/reviews configured
```

confirm the rule was replaced

```
PS D:\istio\istio-1.27.2-win\istio-1.27.2> 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":[{"route":[{"destination":{"host":"reviews","subset":"v1"},"weight":50},{"destination":{"host":"reviews","subset":"v3"},"weight":50}]}]}
  creationTimestamp: "2025-10-15T00:13:33Z"
  generation: 2
  name: reviews
  namespace: default
  resourceVersion: "30993"
  uid: 2eba972c-1c68-4e73-883c-0556ebf28ee7
spec:
  hosts:
  - reviews
  http:
  - route:
    - destination:
        host: reviews
        subset: v1
        weight: 50
    - destination:
        host: reviews
        subset: v3
        weight: 50
```

route 100% of the traffic to reviews:v3

```
PS D:\istio\istio-1.27.2-win\istio-1.27.2> kubectl apply -f samples/bookinfo/networking/virtual-service-reviews-v3.yaml
virtualservice.networking.istio.io/reviews configured
```

## The Comedy of Errors

Summary: [Wikipedia Summary](#): The Comedy of Errors is one of **William Shakespeare's** early plays. It is his shortest and one of his most farcical comedies, with a major part of the humour coming from slapstick and mistaken identity, in addition to puns and word play.

### Book Details

**Type:**  
paperback  
**Pages:**  
200  
**Publisher:**  
PublisherA  
**Language:**  
English  
**ISBN-10:**  
1234567890  
**ISBN-13:**  
123-1234567890

### Book Reviews

An extremely entertaining play by Shakespeare. The slapstick humour is refreshing!

— Reviewer1  
★★★★★

Absolutely fun and entertaining. The play lacks thematic depth when compared to other plays by Shakespeare.

— Reviewer2  
★★★★☆


## Request Routing

Run the following command to apply virtual services that will route all traffic to v1 of each microservice

```
PS D:\istio\istio-1.27.2-win\istio-1.27.2> kubectl apply -f samples/bookinfo/networking/virtual-service-all-v1.yaml
virtualservice.networking.istio.io/productpage unchanged
virtualservice.networking.istio.io/reviews configured
virtualservice.networking.istio.io/ratings unchanged
virtualservice.networking.istio.io/details unchanged
```

Display the defined routes


```
spec:
  hosts:
    - ratings
  http:
    - route:
        - destination:
            host: ratings
            subset: v1
- apiVersion: networking.istio.io/v1
kind: VirtualService
metadata:
  annotations:
    kubectl.kubernetes.io/last-applied-configuration: |
      {"apiVersion":"networking.istio.io/v1","kind":"VirtualService","metadata":{"annot
ations":{},"name":"reviews","namespace":"default"},"spec":{"hosts":["reviews"],"http":[{"
route":[{"destination":{"host":"reviews","subset":"v1"}}]}}}
  creationTimestamp: "2025-10-15T00:13:33Z"
  generation: 6
  name: reviews
  namespace: default
  resourceVersion: "69651"
  uid: 2eba972c-1c68-4e73-883c-0556ebf28ee7
spec:
  hosts:
    - reviews
  http:
    - route:
        - destination:
            host: reviews
            subset: v1
```



## Route based on user identity


Run the following command to enable user-based routing

```
PS D:\istio\istio-1.27.2-win\istio-1.27.2> kubectl apply -f samples/bookinfo/networking/v
irtual-service-reviews-test-v2.yaml
virtualservice.networking.istio.io/reviews configured
PS D:\istio\istio-1.27.2-win\istio-1.27.2> 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":{"annotat
ions":{},"name":"reviews","namespace":"default"},"spec":{"hosts":["reviews"],"http":[{"ma
tch":[{"headers":{"end-user":{"exact":"jason"}}}], "route":[{"destination":{"host":"review
s","subset":"v2"}}]},{"route":[{"destination":{"host":"reviews","subset":"v1"}}]}}}
  creationTimestamp: "2025-10-15T00:13:33Z"
  generation: 7
  name: reviews
  namespace: default
  resourceVersion: "71874"
  uid: 2eba972c-1c68-4e73-883c-0556ebf28ee7
spec:
  hosts:
    - reviews
  http:
    - match:
        - headers:
            end-user:
              exact: jason
      route:
        - destination:
            host: reviews
            subset: v2
    - route:
        - destination:
            host: reviews
            subset: v1
```



On the /productpage of the Bookinfo app, log in as user Jason

BookInfo Sample

 **jason**  
Sign out

## The Comedy of Errors

Wikipedia Summary: The Comedy of Errors is one of **William Shakespeare's** early plays. It is his shortest and one of his most farcical comedies, with a major part of the humour coming from slapstick and mistaken identity, in addition to puns and word play.

[Learn more about Istio](#) →


### Book Details

ISBN-10	Publisher	Pages	Type	Language
1234567890	PublisherA	200	paperback	English

### Book Reviews


★★★★★

"An extremely entertaining play by Shakespeare. The slapstick humour is refreshing!"

 **Reviewer1**  
Reviews served by: reviews-v2-67d565655f-knj5n


★★★★☆

"Absolutely fun and entertaining. The play lacks thematic depth when compared to other plays by Shakespeare."

 **Reviewer2**  
Reviews served by: reviews-v2-67d565655f-knj5n

Log in as another user  
Refresh the browser. Now the stars are gone.

BookInfo Sample

 **travellercat**  
Sign out

## The Comedy of Errors

Wikipedia Summary: The Comedy of Errors is one of **William Shakespeare's** early plays. It is his shortest and one of his most farcical comedies, with a major part of the humour coming from slapstick and mistaken identity, in addition to puns and word play.


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### Book Details


ISBN-10	Publisher	Pages	Type	Language
1234567890	PublisherA	200	paperback	English

### Book Reviews

"An extremely entertaining play by Shakespeare. The slapstick humour is refreshing!"

 **Reviewer1**  
Reviews served by: reviews-v1-8cf7b9cc5-fv69b

"Absolutely fun and entertaining. The play lacks thematic depth when compared to other plays by Shakespeare."

 **Reviewer2**  
Reviews served by: reviews-v1-8cf7b9cc5-fv69b

## Fault Injection

### Injecting an HTTP delay fault

Create a fault injection rule to delay traffic coming from the test user Jason

```
subset: v1
PS D:\istio\istio-1.27.2-win\istio-1.27.2> kubectl apply -f samples/bookinfo/networking
/virtual-service-ratings-test-delay.yaml
virtualservice.networking.istio.io/ratings configured
```

Confirm the rule was created

```
PS D:\istio\istio-1.27.2-win\istio-1.27.2> 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":{"annot
ations":{},"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: "2025-10-15T00:13:33Z"
  generation: 2
  name: ratings
  namespace: default
  resourceVersion: "76505"
  uid: b613bc74-a2f4-45d0-91bf-b2563cda9470
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
```

## Testing the delay configuration

Open the [Bookinfo](#) web application in browser, log in as user Jason



# The Comedy of Errors

Wikipedia Summary: The Comedy of Errors is one of **William Shakespeare's** early plays. It is his shortest and one of his most farcical comedies, with a major part of the humour coming from slapstick and mistaken identity, in addition to puns and word play.

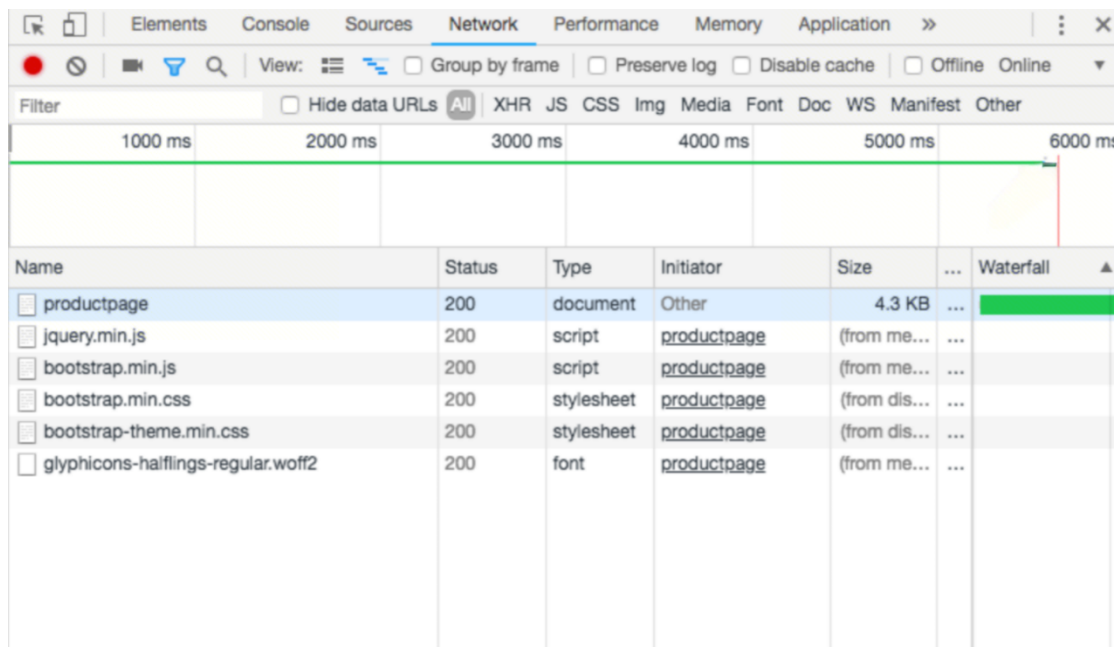
[Learn more about Istio](#) →

## Book Details

ISBN-10	Publisher	Pages	Type	Language
1234567890	PublisherA	200	paperback	English

### Error fetching product reviews

Sorry, product reviews are currently unavailable for this book.



Fixing the bug

### Injecting an HTTP abort fault

Create a fault injection rule to send an HTTP abort for user jason

```

PS D:\istio\istio-1.27.2-win\istio-1.27.2> kubectl apply -f samples/bookinfo/networking
/virtual-service-ratings-test-abort.yaml
virtualservice.networking.istio.io/ratings configured

```

Confirm the rule was created:


```

PS D:\istio\istio-1.27.2-win\istio-1.27.2> kubectl get virtualservice ratings -o yaml
apiVersion: networking.istio.io/v1
kind: VirtualService
metadata:
  annotations:
    kubernetes.io/last-applied-configuration: |
      {"apiVersion":"networking.istio.io/v1","kind":"VirtualService","metadata":{"annot
ations":{},"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"}}]}]}]}
      creationTimestamp: "2025-10-15T00:13:33Z"
      generation: 3
      name: ratings
      namespace: default
      resourceVersion: "77914"
      uid: b613bc74-a2f4-45d0-91bf-b2563cda9470
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

```

Testing the abort configuration

BookInfo Sample

 Jason  
Sign Out

## The Comedy of Errors

Wikipedia Summary: The Comedy of Errors is one of **William Shakespeare's** early plays. It is his shortest and one of his most farcical comedies, with a major part of the humour coming from slapstick and mistaken identity, in addition to puns and word play.


[Learn more about Istio →](#)

### Book Details


ISBN-10	Publisher	Pages	Type	Language
1234567890	PublisherA	200	paperback	English

### Book Reviews

Ratings service is currently unavailable

"An extremely entertaining play by Shakespeare. The slapstick humour is refreshing!"  
 Reviewer1  
Reviews served by: reviews-v2-556d6457d-hzj9n

Ratings service is currently unavailable

"Absolutely fun and entertaining. The play lacks thematic depth when compared to other plays by Shakespeare."  
 Reviewer2  
Reviews served by: reviews-v2-556d6457d-hzj9n

## Circuit Breaking

Create a [destination rule](#) to apply circuit breaking settings when calling the httpbin service

```
> kubectl apply -f - <<EOFapiVersion: networking.istio.io/v1kind: DestinationRulemetadata: name: httpbinspec:
  host: httpbin  trafficPolicy:
    connectionPool:
      tcp:
        maxConnections: 1
    http:
      http1MaxPendingRequests: 1
      maxRequestsPerConnection: 1
    outlierDetection:
      consecutive5xxErrors: 1
      interval: 1s
      baseEjectionTime: 3m
      maxEjectionPercent: 100EOF
```

```
x run_shell_command {"command":"kubectl apply -f - <<EOF apiVersion: networking.istio.io/v1 kind: DestinationRule
Command exited with code: 1
```

```
✓ write_file Writing to httpbin-destination-rule.yaml
... first 9 line9} hidden ... (ctrl+r to expand)
10   maxConnections: 1
11   http:
12     http1MaxPendingRequests: 1
13     maxRequestsPerConnection: 1
14   outlierDetection:
15     consecutive5xxErrors: 1
16     interval: 1s
17     baseEjectionTime: 3m
18     maxEjectionPercent: 100
```

```
✓ Shell Command kubectl apply -f httpbin-destination-rule.yaml (应用DestinationRule配置文件)
destinationrule.networking.istio.io/httpbin created
```

Verify the destination rule was created correctly



```
PS D:\istio\istio-1.27.2-win\istio-1.27.2> 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":{"http1MaxPendingRequests":1,"maxRequestsPerConnection":1},"tcp":{"maxConnections":1}},"outlierDetection":{"baseEjectionTime":"3m","consecutive5xxErrors":1,"interval":"1s","maxEjectionPercent":100}}}}
  creationTimestamp: "2025-10-21T06:07:38Z"
  generation: 1
  name: httpbin
  namespace: default
  resourceVersion: "84146"
  uid: facdc3d8-fed4-42c5-9077-b73d21fd784e
spec:
  host: httpbin
  trafficPolicy:
    connectionPool:
      http:
        http1MaxPendingRequests: 1
        maxRequestsPerConnection: 1
      tcp:
        maxConnections: 1
    outlierDetection:
      baseEjectionTime: 3m
      consecutive5xxErrors: 1
      interval: 1s
      maxEjectionPercent: 100
```

## Adding a client

deploy the fortio service

```
PS D:\istio\istio-1.27.2-win\istio-1.27.2> kubectl apply -f samples/httpbin/sample-client/fortio-deploy.yaml
service/fortio created
deployment.apps/fortio-deploy created
```

Log in to the client pod and use the fortio tool to call httpbin. Pass in curl to indicate that you just want to make one call

```
PS D:\istio\istio-1.27.2-win\istio-1.27.2> $env:FORTIO_POD = kubectl get pods -l app=fortio -o 'jsonpath={.items[0].metadata.name}'
PS D:\istio\istio-1.27.2-win\istio-1.27.2> kubectl exec "$FORTIO_POD" -c fortio -- /usr/bin/fortio curl -quiet http://httpbin:8000/get
```

```
HTTP/1.1 200 OK
access-control-allow-credentials: true
access-control-allow-origin: *
content-type: application/json; charset=utf-8
date: Tue, 21 Oct 2025 06:20:14 GMT
content-length: 621
x-envoy-upstream-service-time: 5
server: envoy
\

JSON响应体:
\json
{
  "args": {},
  "headers": {
    "Host": [
      "httpbin:8000"
    ],
    "User-Agent": [
      "fortio.org/fortio-1.69.5"
    ],
    "X-Envoy-Attempt-Count": [
      "1"
    ],
    "X-Forwarded-Client-Cert": [
      "By=spiffe://cluster.local/ns/default/sa/httpbin;Hash=aa4435d523fbefc8f48c48b06e72d14ebc02a0db17996e66633d87665c7c47ef;Subject=\"\",URI=spiffe://cluster.local/ns/default/sa/default"
    ],
    "X-Forwarded-Proto": [
      "http"
    ],
    "X-Request-Id": [
      "6087311e-1a26-93a2-ab05-2b858eaeaad4"
    ]
  },
  "method": "GET",
  "origin": "127.0.0.6:53813",
  "url": "http://httpbin:8000/get"
}
```

Tripping the circuit breaker

```
> kubectl exec "$FORTIO_POD" -c fortio -- /usr/bin/fortio load -c 2 -qps 0 -n 20 -loglevel Warning
http://httpbin:8000/get
```

```
✓ Shell Command kubectl exec fortio-deploy-5c948d95cf-dbwf9 -c fortio -- /usr/bin/fortio load -c 2 -qps 0 -n 20 ...
... first 56 line56} hidden ... (ctrl+r to expand)
Uniform: false, Jitter: false, Catchup allowed: true
IP addresses distribution:
10.101.183.20:8000: 10
Code 200 : 12 (60.0 %)
Code 503 : 8 (40.0 %)
Response Header Sizes : count 20 avg 147 +/- 120 min 0 max 245 sum 2940
Response Body/Total Sizes : count 20 avg 616 +/- 306.2 min 241 max 866 sum 12320
All done 20 calls (plus 0 warmup) 3.104 ms avg, 619.5 qps
```

Bring the number of concurrent connections up to 3

```
> kubectl exec "$FORTIO_POD" -c fortio -- /usr/bin/fortio load -c 3 -qps 0 -n 30 -loglevel Warning
http://httpbin:8000/get
```

```
✓ Shell Command kubectl exec fortio-deploy-5c948d95cf-dbwf9 -c fortio -- /usr/bin/fortio load -c 3 -qps 0 -n 30 ...
... first 76 line76} hidden ... (ctrl+r to expand)
Uniform: false, Jitter: false, Catchup allowed: true
IP addresses distribution:
10.101.183.20:8000: 19
Code 200 : 13 (43.3 %)
Code 503 : 17 (56.7 %)
Response Header Sizes : count 30 avg 106.16667 +/- 121.4 min 0 max 245 sum 3185
Response Body/Total Sizes : count 30 avg 511.83333 +/- 309.7 min 241 max 866 sum 15355
All done 30 calls (plus 0 warmup) 2.873 ms avg, 942.6 qps
```

Query the istio-proxy stats to see more

```
cluster.outbound|8000||httpbin.default.svc.cluster.local; version_text: "2025-10-21T06:15:08Z/11"
cluster.outbound|8000||httpbin.default.svc.cluster.local; assignment_stale: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; assignment_timeout_received: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; assignment_use_cached: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; bind_errors: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.default.cx_open: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.default.cx_pool_open: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.default.remaining_cx: 1
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.default.remaining_cx_pools: 18446744073
14
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.default.remaining_pending: 1
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.default.remaining_retries: 4294967295
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.default.remaining_rq: 4294967295
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.default.rq_open: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.default.rq_pending_open: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.default.rq_retry_open: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.high.cx_open: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.high.cx_pool_open: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.high.rq_open: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.high.rq_pending_open: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; circuit_breakers.high.rq_retry_open: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; client_ssl_socket_factory.downstream_context_secrets_not
0
cluster.outbound|8000||httpbin.default.svc.cluster.local; client_ssl_socket_factory.ssl_context_update_by_sds: 2
cluster.outbound|8000||httpbin.default.svc.cluster.local; client_ssl_socket_factory.upstream_context_secrets_not_r
```

```
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_200: 26
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_2xx: 26
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_503: 25
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_5xx: 25
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_active: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_cancelled: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_completed: 51
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_maintenance_mode: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_max_duration_reached: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_pending_active: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_pending_failure_eject: 0
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_pending_overflow: 25
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_pending_total: 26
cluster.outbound|8000||httpbin.default.svc.cluster.local; upstream_rq_per_try_idle_timeout: 0
```