Lab 5 Report



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# Traffic Shifting

## Before you begin

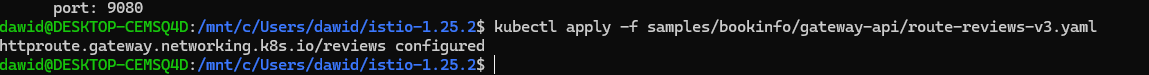
1. Istio installed from the previous exercise
2. Bookinfo setup from the previous exercise
3. Read through the traffic management concept page

## Apply weight-based routing

1. Rerouted all the traffic to v1 using this command
   1. kubectl apply -f samples/bookinfo/gateway-api/route-reviews-v3.yaml
   2. I used the gateway API for this purpose
2. Opened the book review website and the reviews had no rating stars
3. Transferred 50% of traffic from version 1 to version 2
4. Checked the new rules applied to traffic
5. Refreshed the page couple times and sometimes the stars were there sometimes not.
6. Applied version 3 to 100% of the traffic
7. Refreshed a couple of times to see that the page has 100% of the time the red stars.

A computer screen with white text

AI-generated content may be incorrect.



Screens screenshot of a computer

AI-generated content may be incorrect.

## Cleanup

1. Ran kubectl delete httproute reviews, to cleanup for future exercises.

# Request Routing

## Before you begin

1. Istio already setup
2. Bookinfo already up
3. Already went through the traffic management concepts doc.

## Route to version 1

1. Ran a command to create route rules.
2. Displayed the routes with the applied rules

A screenshot of a computer screen

AI-generated content may be incorrect.

A screen shot of a computer

AI-generated content may be incorrect.Here you can compare the applied rules to the view of the routes

## Test the new routing configuration

1. Refreshed the page and noticed that no stars are displayed anymore, this is due the routing rules applied the previous section.

A screenshot of a computer

AI-generated content may be incorrect.

## Route based on user identity

1. Applied a new rule to routing that only affects a single user.
2. Logged in as Jason and noticed that there were black stars, meaning v2 was in effect.
3. Logged in as Steve and the stars were gone like in v1.

A screenshot of a computer

AI-generated content may be incorrect.The new rule

Screens screenshot of a computer screen

AI-generated content may be incorrect.Jason v Steve accounts

## Cleanup

1. Cleaned up the application route rules with:
   1. kubectl delete httproute reviews

# Fault Injection

## Before you begin

1. Istio is already set up
2. Bookinfo is already up with default destination rules
3. Already reviewed traffic management concepts doc
4. Ran the commands provided for request routing

A screenshot of a computer screen

AI-generated content may be incorrect.

## Injecting an HTTP delay fault

1. Applied a 7 second delay for Jason using:
   1. kubectl apply -f samples/bookinfo/networking/virtual-service-ratings-test-delay.yaml
2. Checked if the rule was created.

A computer screen shot of a computer program

AI-generated content may be incorrect.

A screen shot of a computer program

AI-generated content may be incorrect.

## Testing the delay configuration

1. Opened the web application for book info
2. Logged in as Jason, and there were errors on the page at the review section
3. Checked the time for execution on the network and it failed as expected at 6s.

A screenshot of a computer

AI-generated content may be incorrect.

## Fixing the bug

1. To solve the delay issue Im going to migrate all traffic to v3 using:
   1. kubectl apply -f samples/bookinfo/gateway-api/route-reviews-v3.yaml
   2. This works because it lowers the delay time
   3. Also this for some reason fixed the delay not occurring issue.
2. Checked if the change was applied



A screenshot of a computer

AI-generated content may be incorrect.

## Injecting an HTTP abort fault

1. Created a fault injection rule to send an HTTP abort for user Jason, this was done to test for microservice resiliency.
2. The route rules were checked to see if the change was applied.

A screenshot of a computer program

AI-generated content may be incorrect.

## Testing the abort configuration

1. Opened the Bookinfo web application in my browser
2. Went to check if the rating unavailable message appears, and it did
3. Went into a private tab and logged out to see if the error message doesn’t appear.

## Screens screenshot of a computer AI-generated content may be incorrect.Cleanup

1. Removed the application routing rules:
   1. kubectl delete -f samples/bookinfo/networking/virtual-service-all-v1.yaml

# Circuit Breaking

## Before you begin

1. Istio is already set up
2. Started the httpbin sample using
   1. kubectl apply -f samples/httpbin/httpbin.yaml

## Configuring the circuit breaker

1. Applied a destination rule to apply circuit breakers for httpbin
2. Checked if the rule was applied

A screenshot of a computer screen

AI-generated content may be incorrect.

## Adding a client

1. Injected an istio client
2. Logged into the client pod and used the fortio to call httpbin

A screenshot of a computer program

AI-generated content may be incorrect.

## Tripping the circuit breaker

1. Ran 2 concurrent connections and 20 requests
2. Ran 3 concurrent connections and 20 requests
3. Queries istio-proxy to see more

A computer screen with white text

AI-generated content may be incorrect.2 concurrent connections -> 60% success

A screen shot of a computer

AI-generated content may be incorrect.3 concurrent connections -> 40% success

A screen shot of a computer

AI-generated content may be incorrect.Statistics for the circuit break

## Cleaning up

1. Deleted the rules
2. Shutdown httpbin

A screen shot of a computer

AI-generated content may be incorrect.