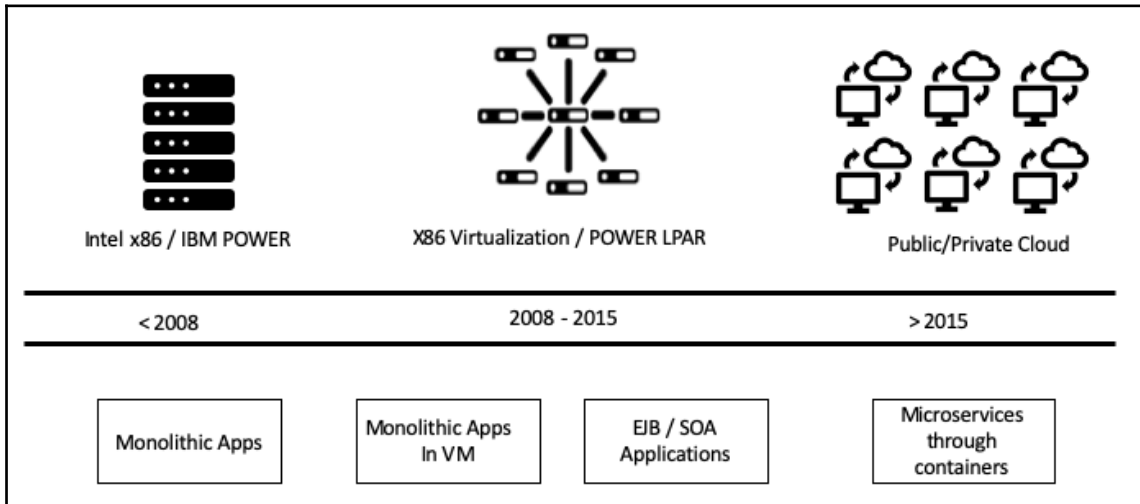
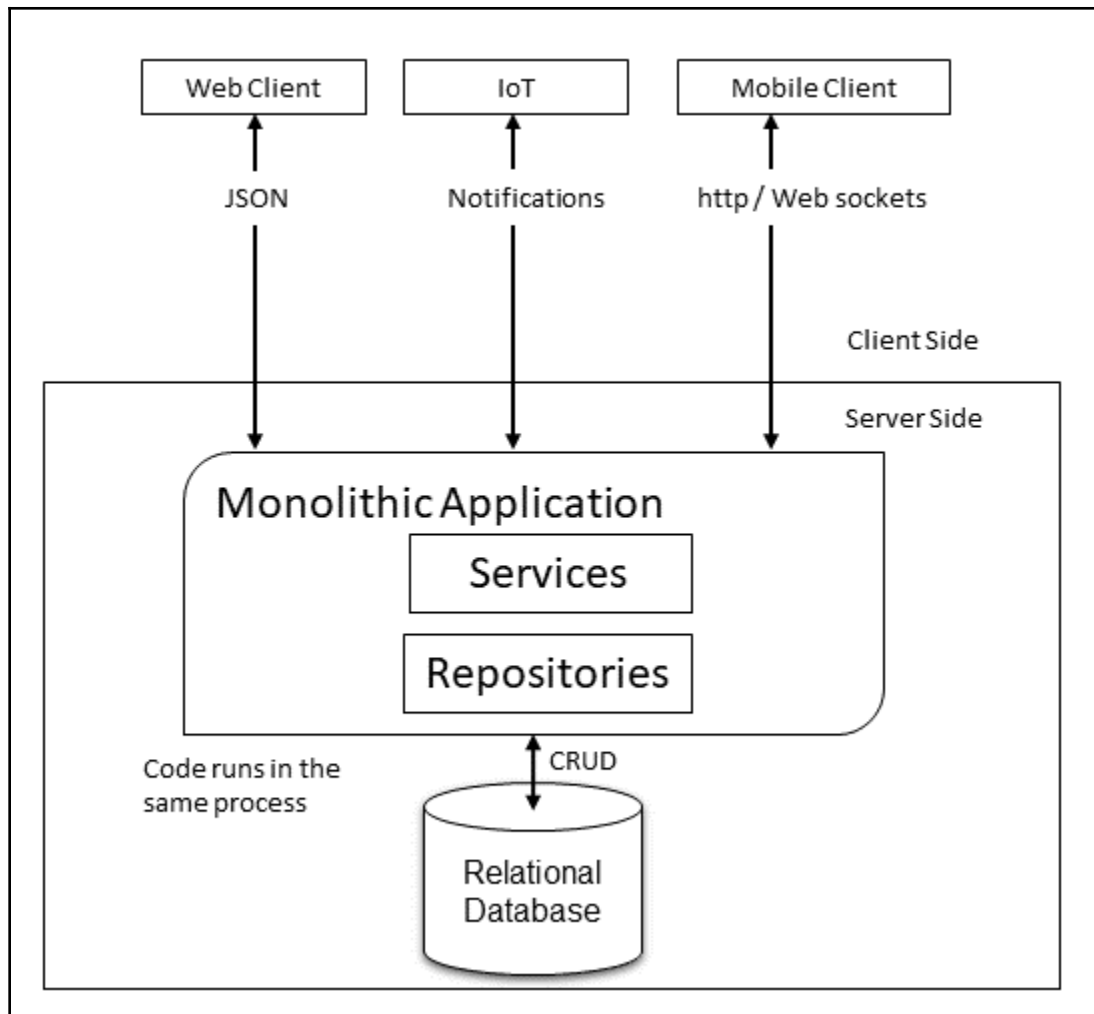
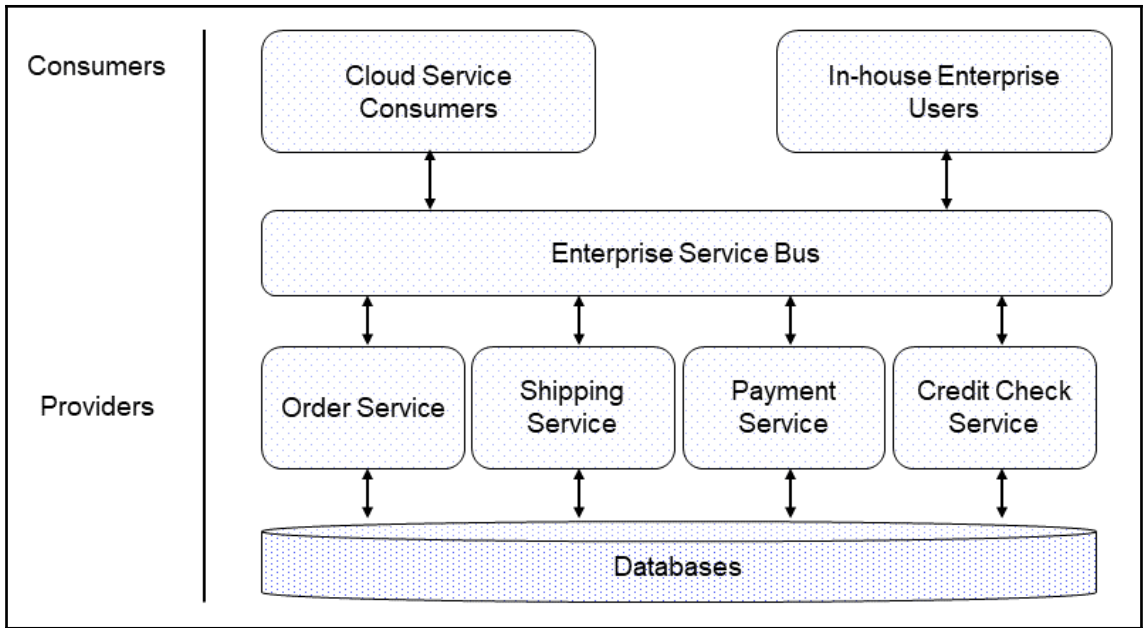
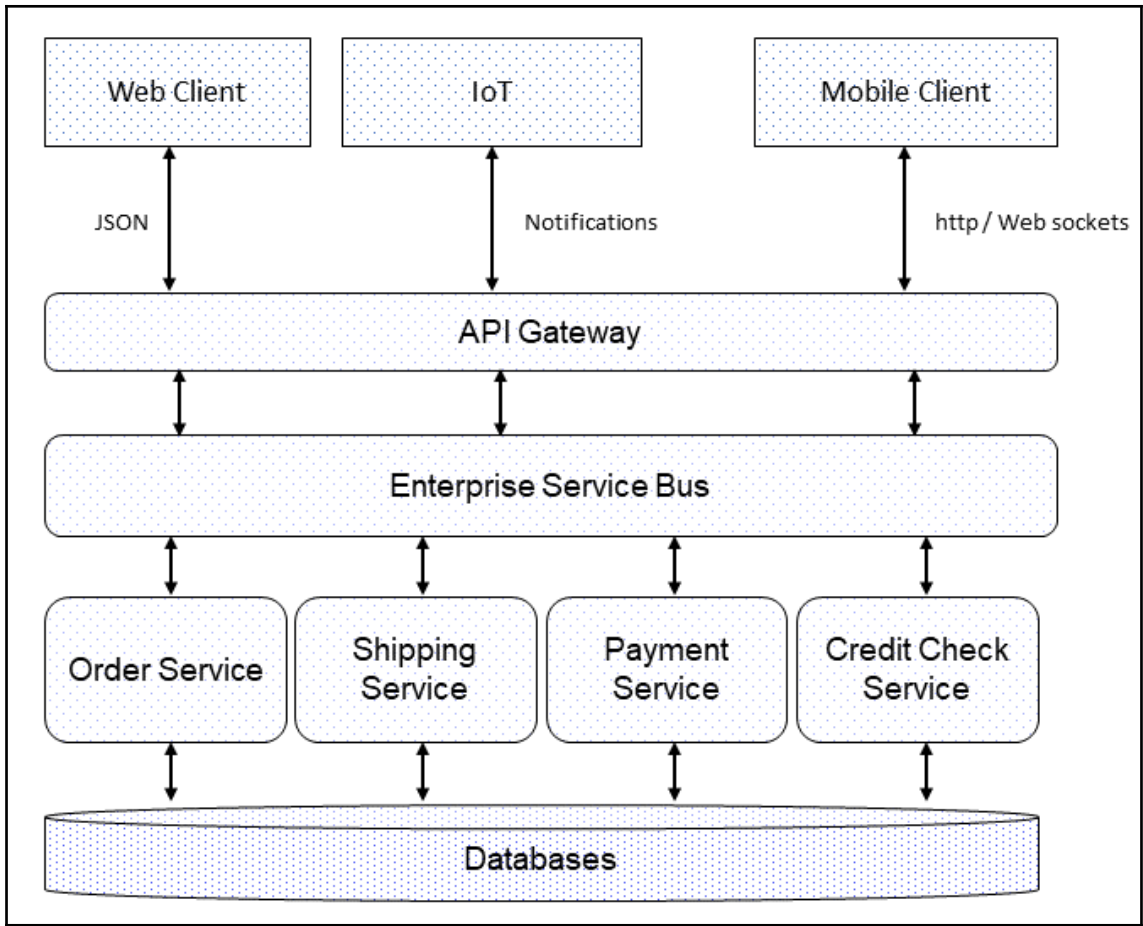


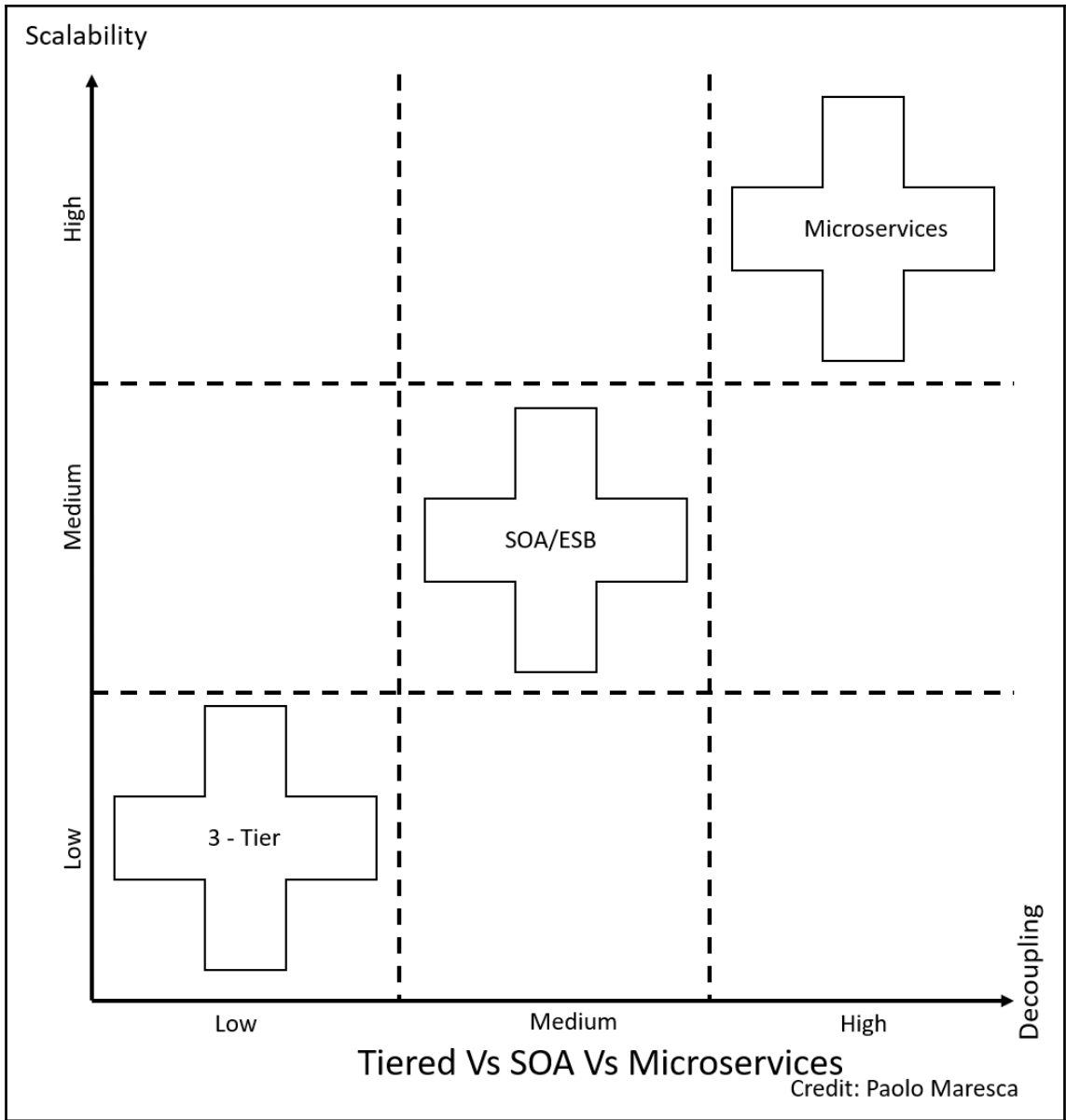
Chapter 1: Monolithic Versus Microservices

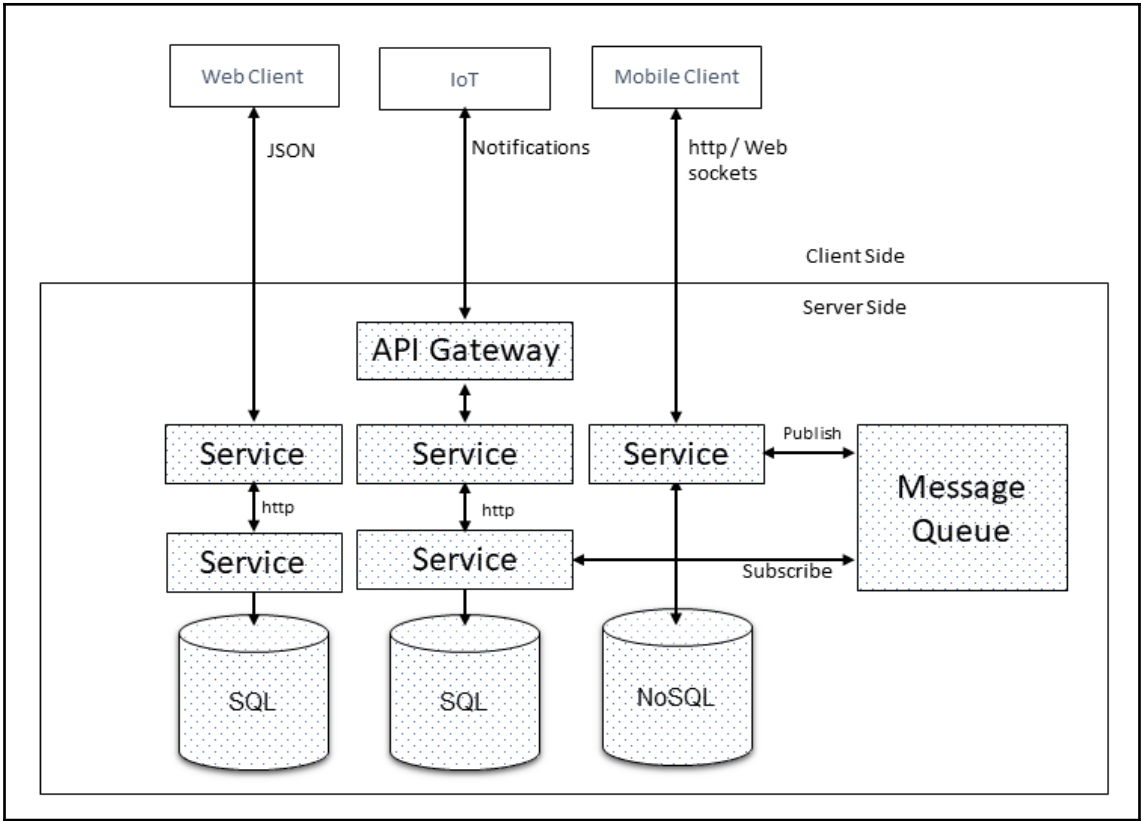




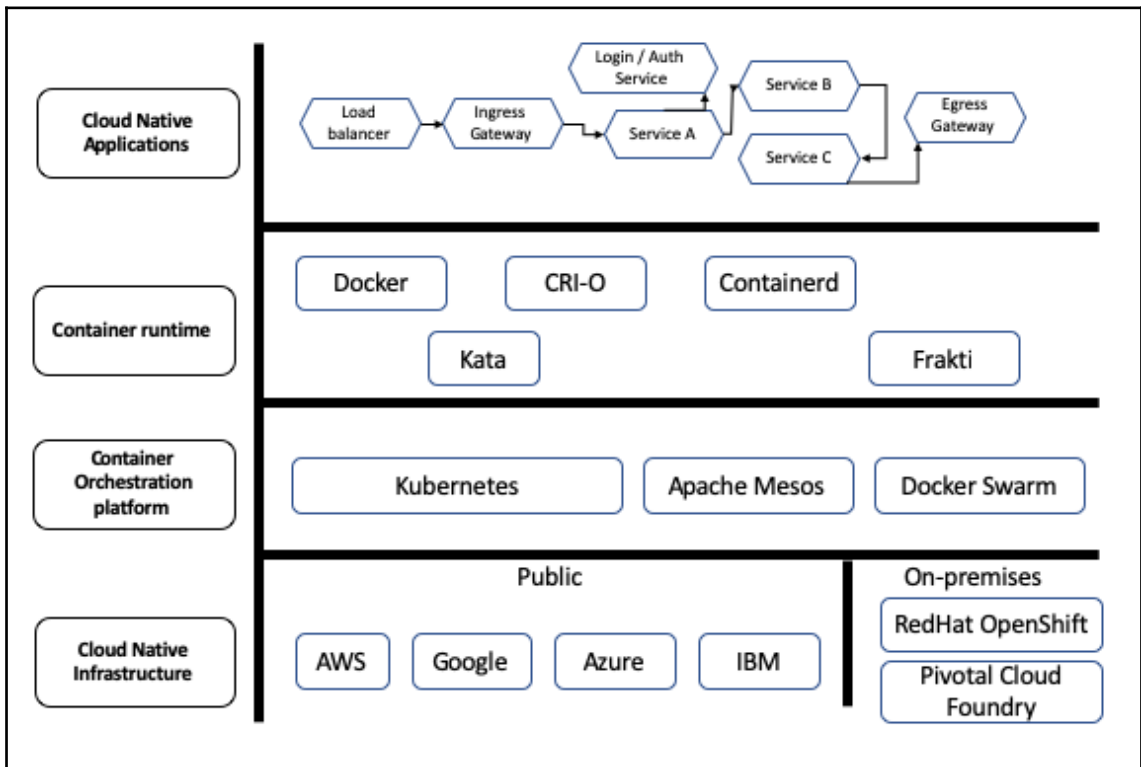




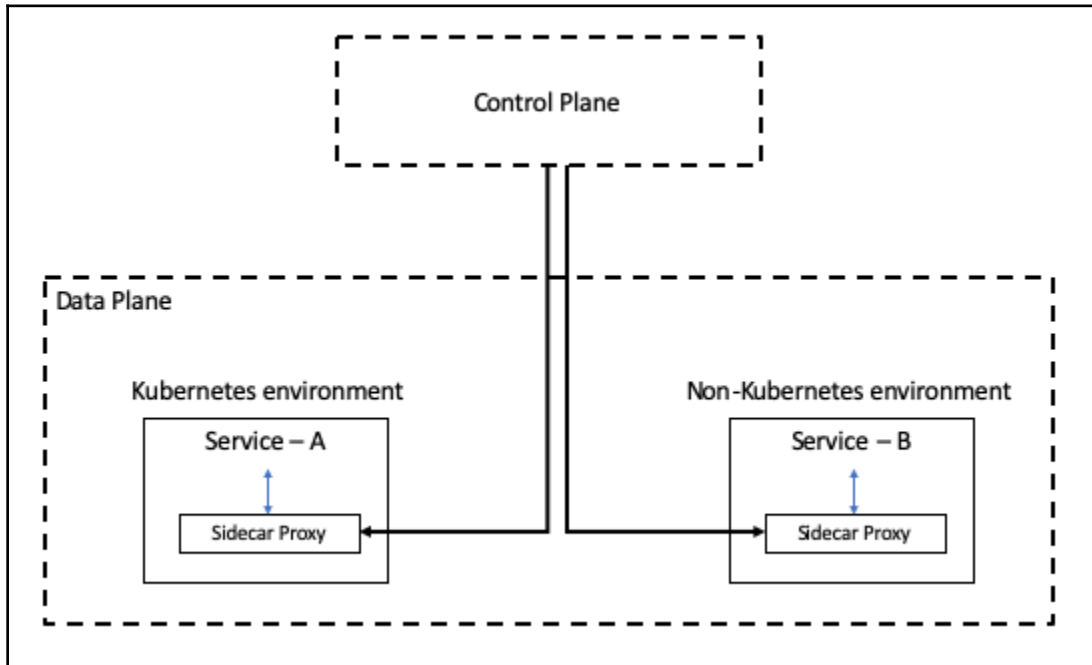





Chapter 2: Cloud-Native Applications



Chapter 3: Service Mesh Architecture



Chapter 6: Building Your Own Kubernetes Environment




Your connection is not private

Attackers might be trying to steal your information from **localhost** (for example, passwords, messages, or credit cards). [Learn more](#)


NET::ERR_CERT_COMMON_NAME_INVALID

Help improve Safe Browsing by sending some [system information and page content](#) to Google.
[Privacy policy](#)



[Hide advanced](#) [Back to safety](#)

This server could not prove that it is **localhost**; its security certificate is from .. This may be caused by a misconfiguration or an attacker intercepting your connection.

[Proceed to localhost \(unsafe\)](#) 

Kubernetes Dashboard

Kubeconfig

Please select the kubeconfig file that you have created to configure access to the cluster. To find out more about how to configure and use kubeconfig file, please refer to the [Configure Access to Multiple Clusters](#) section.

Token ←

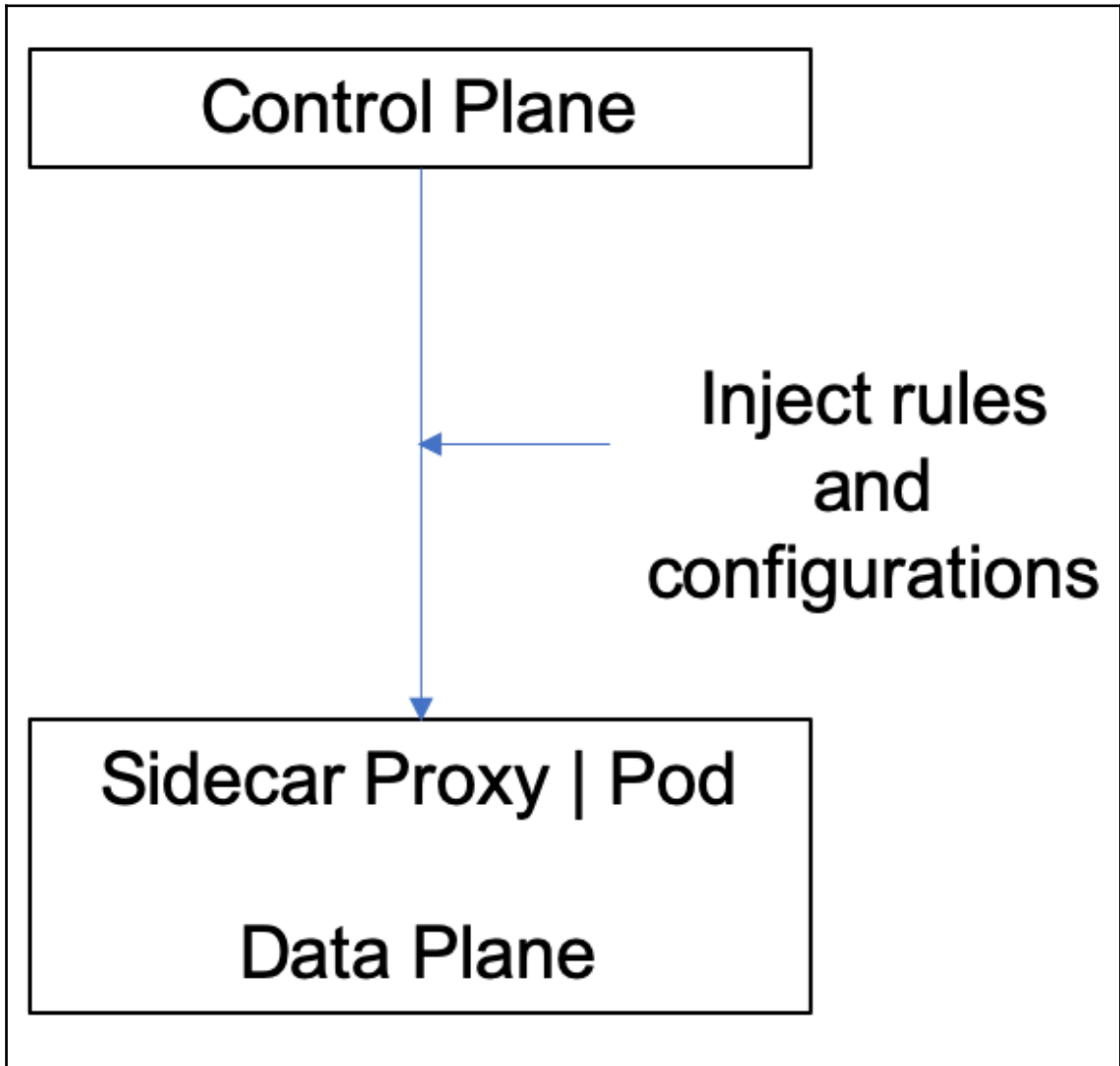
Every Service Account has a Secret with valid Bearer Token that can be used to log in to Dashboard. To find out more about how to configure and use Bearer Tokens, please refer to the [Authentication](#) section.

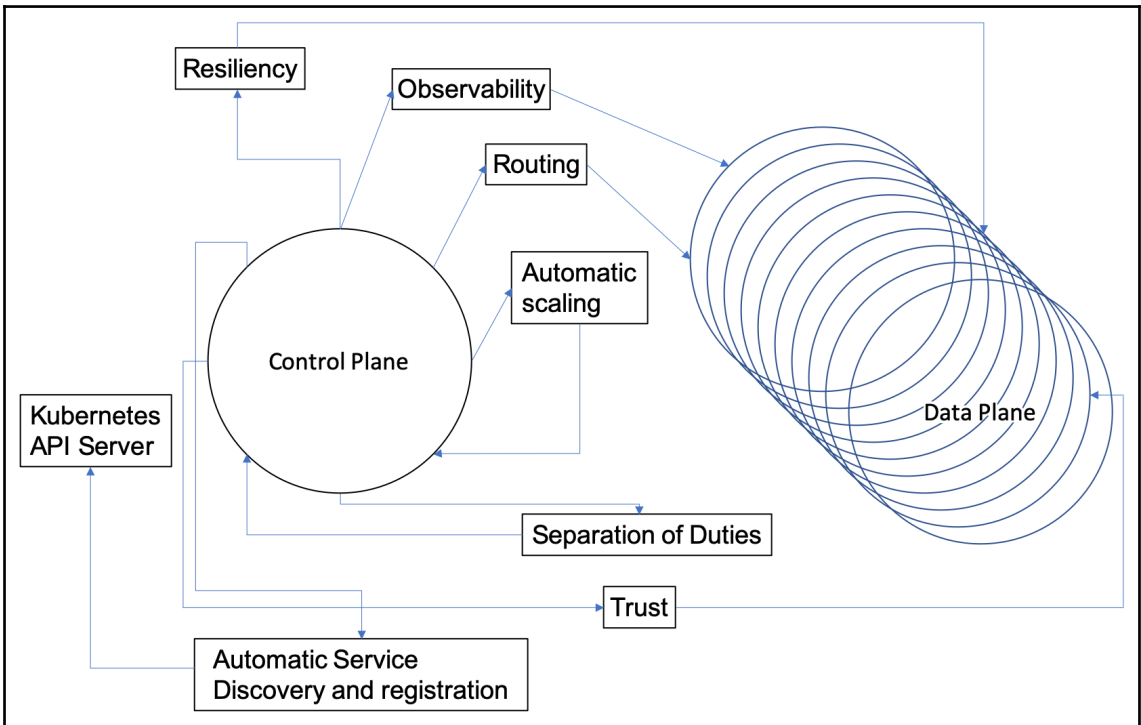
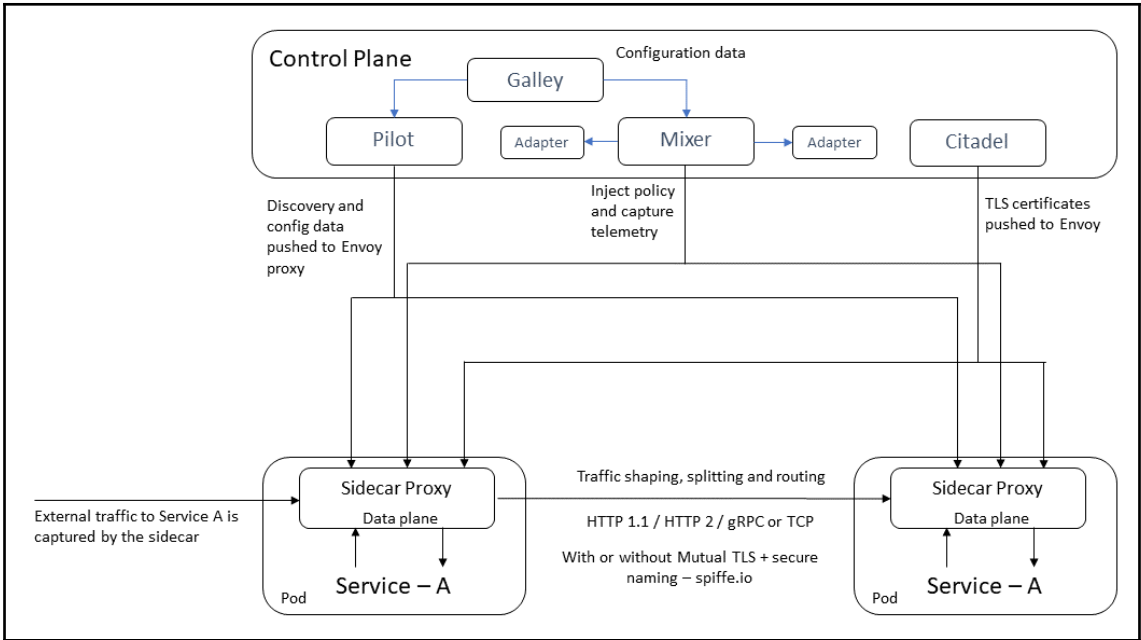
Enter token ↓

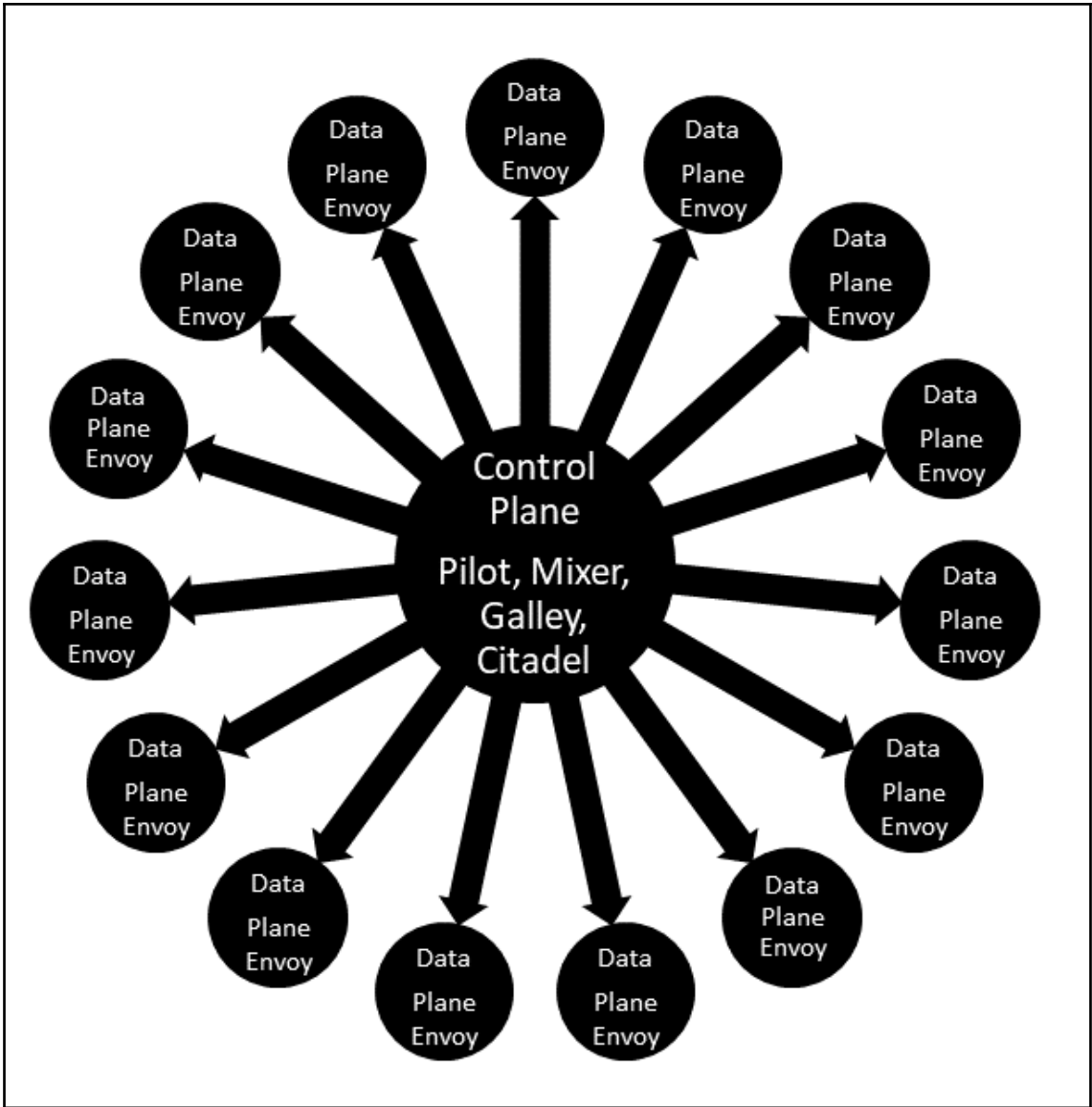
.....

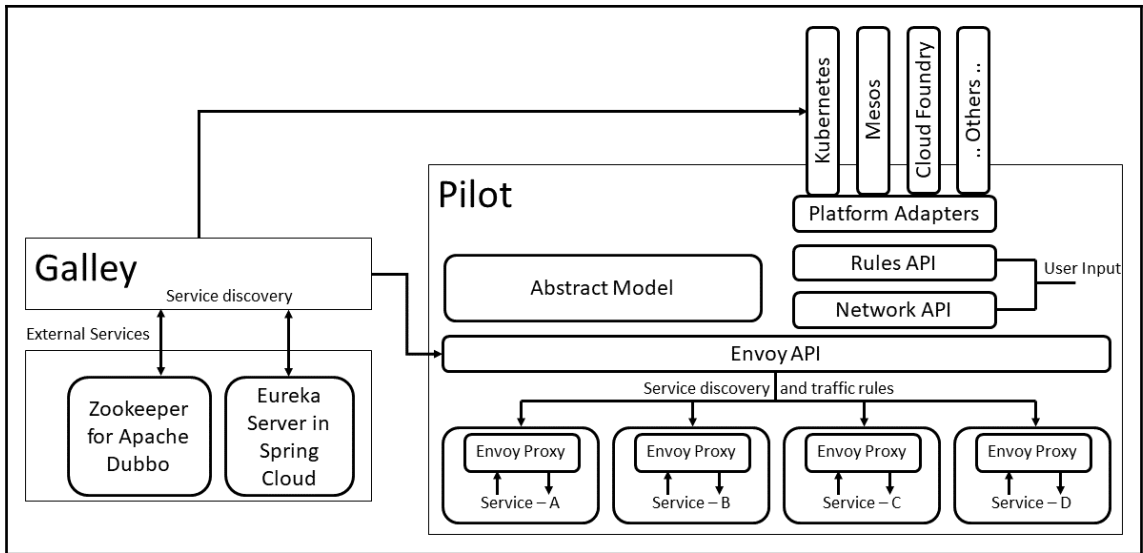
↓
SIGN IN

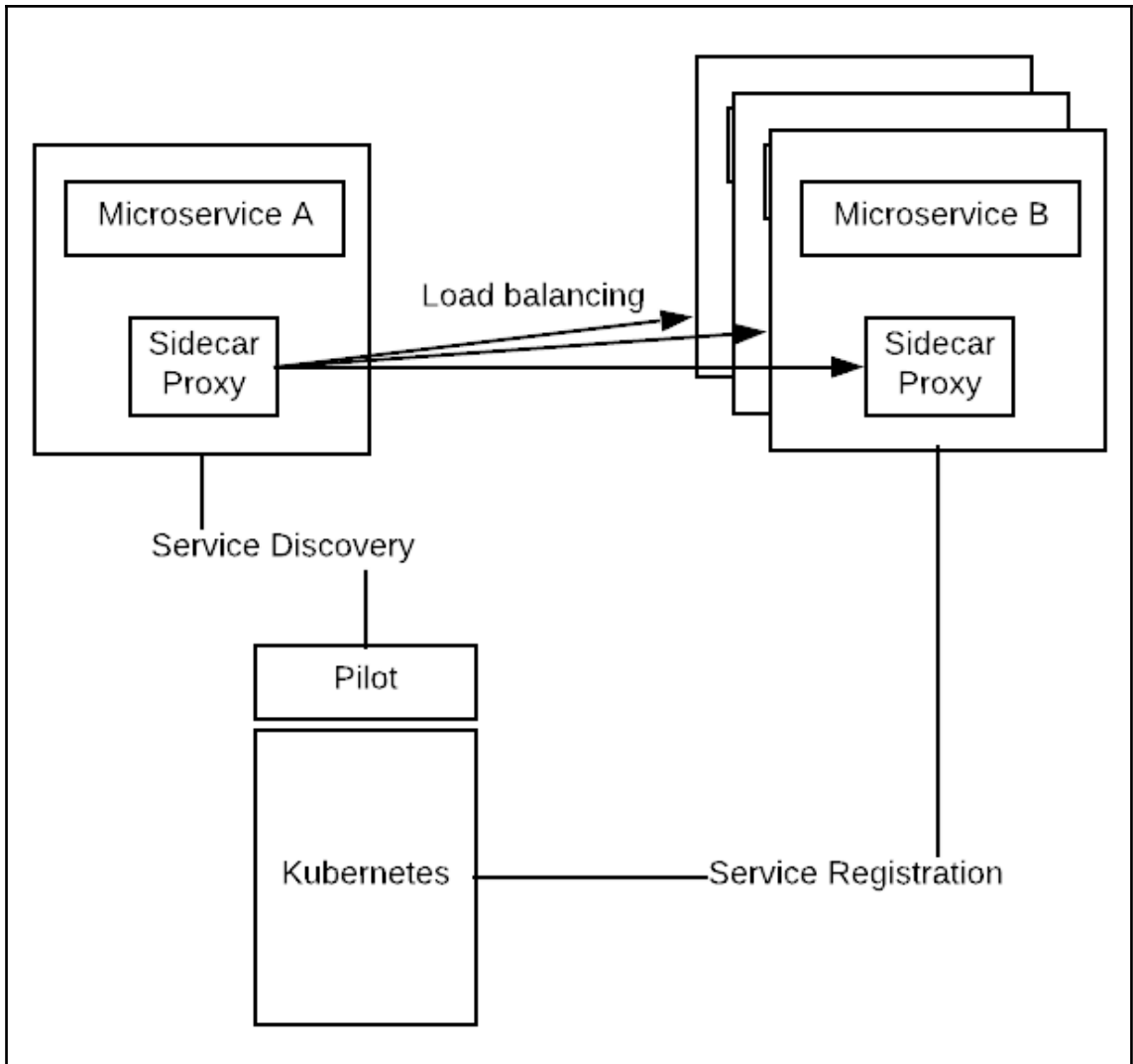
Chapter 7: Understanding the Istio Service Mesh

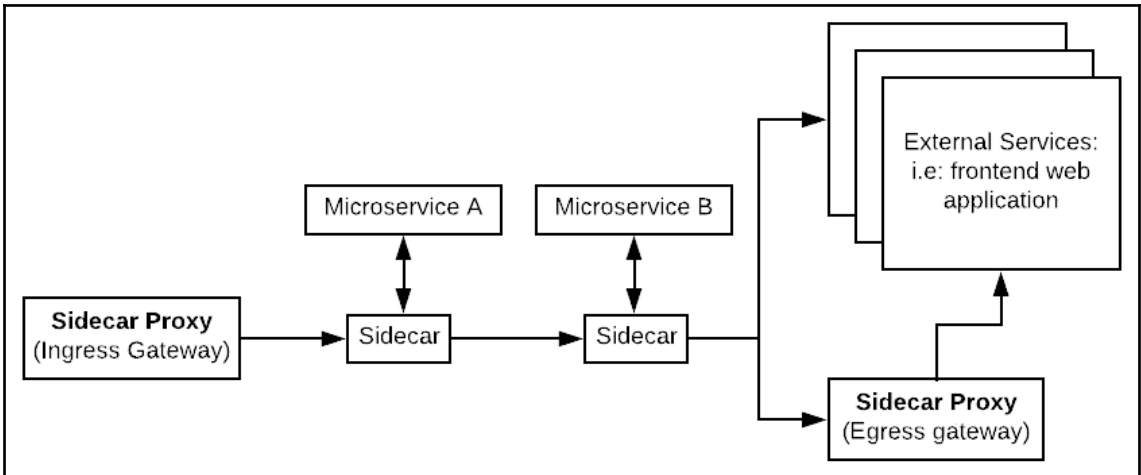
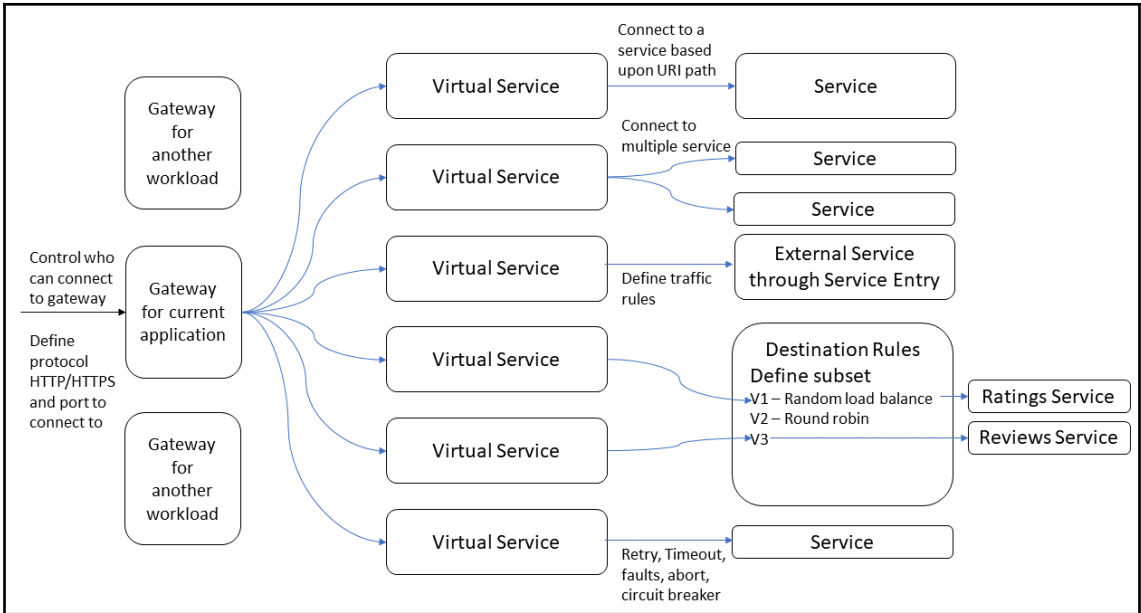


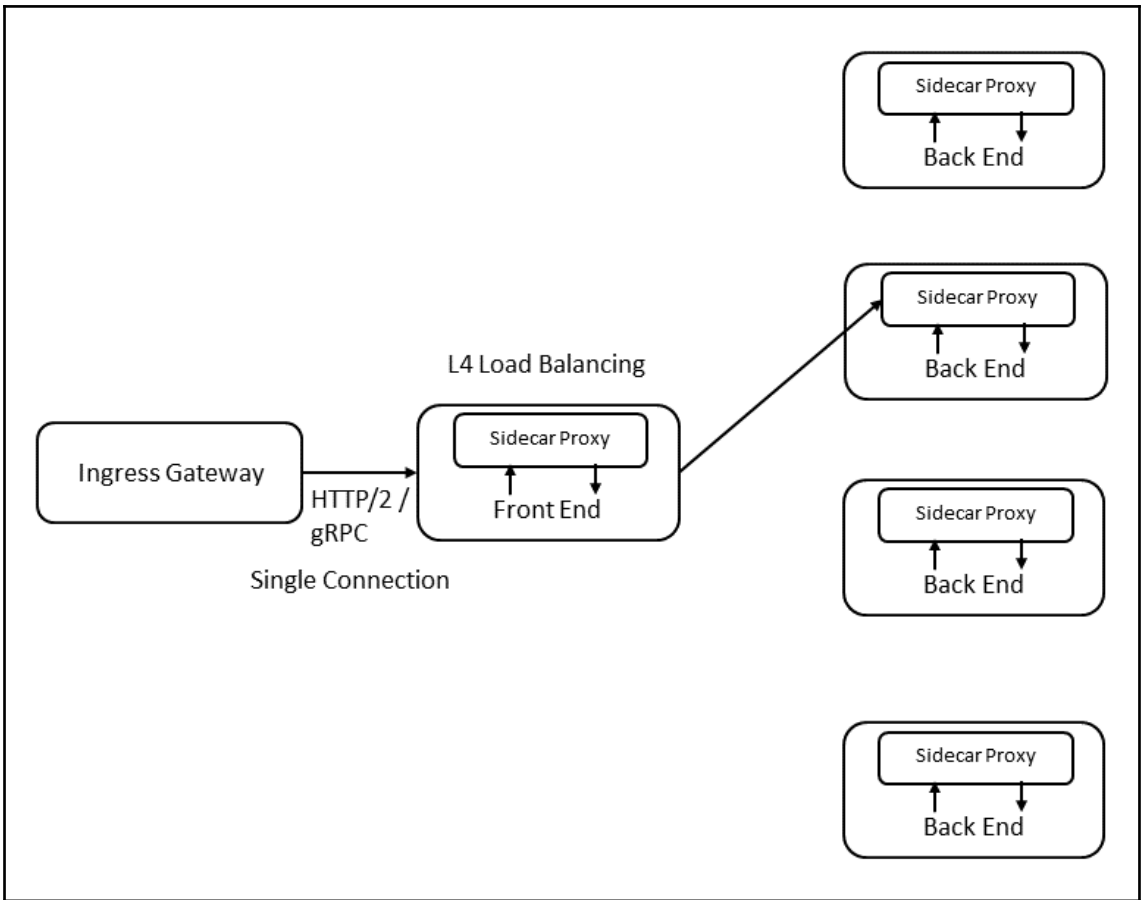
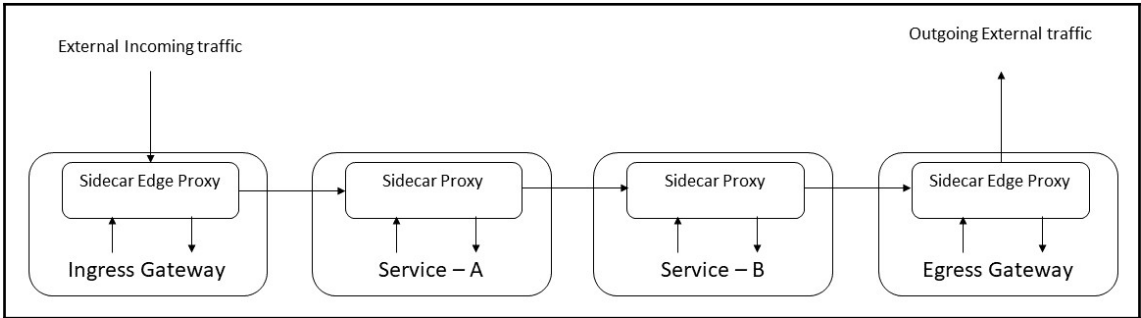


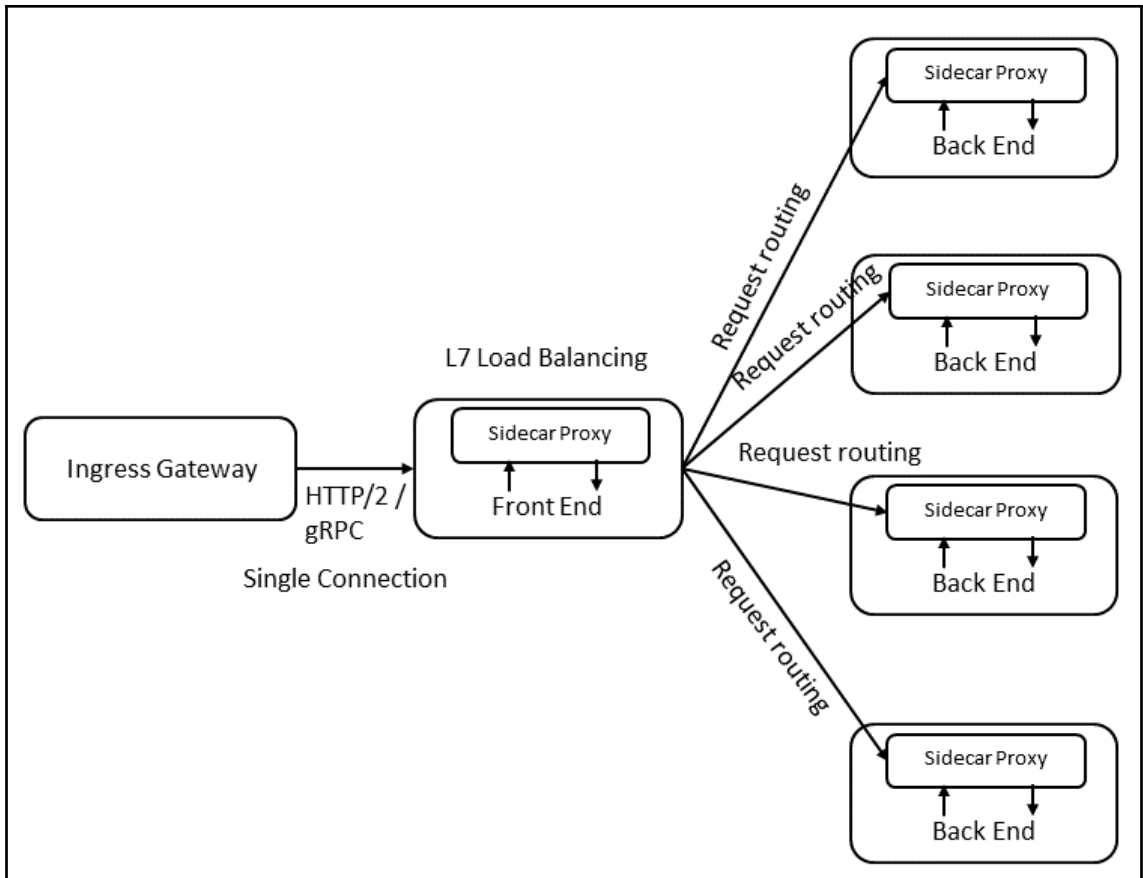


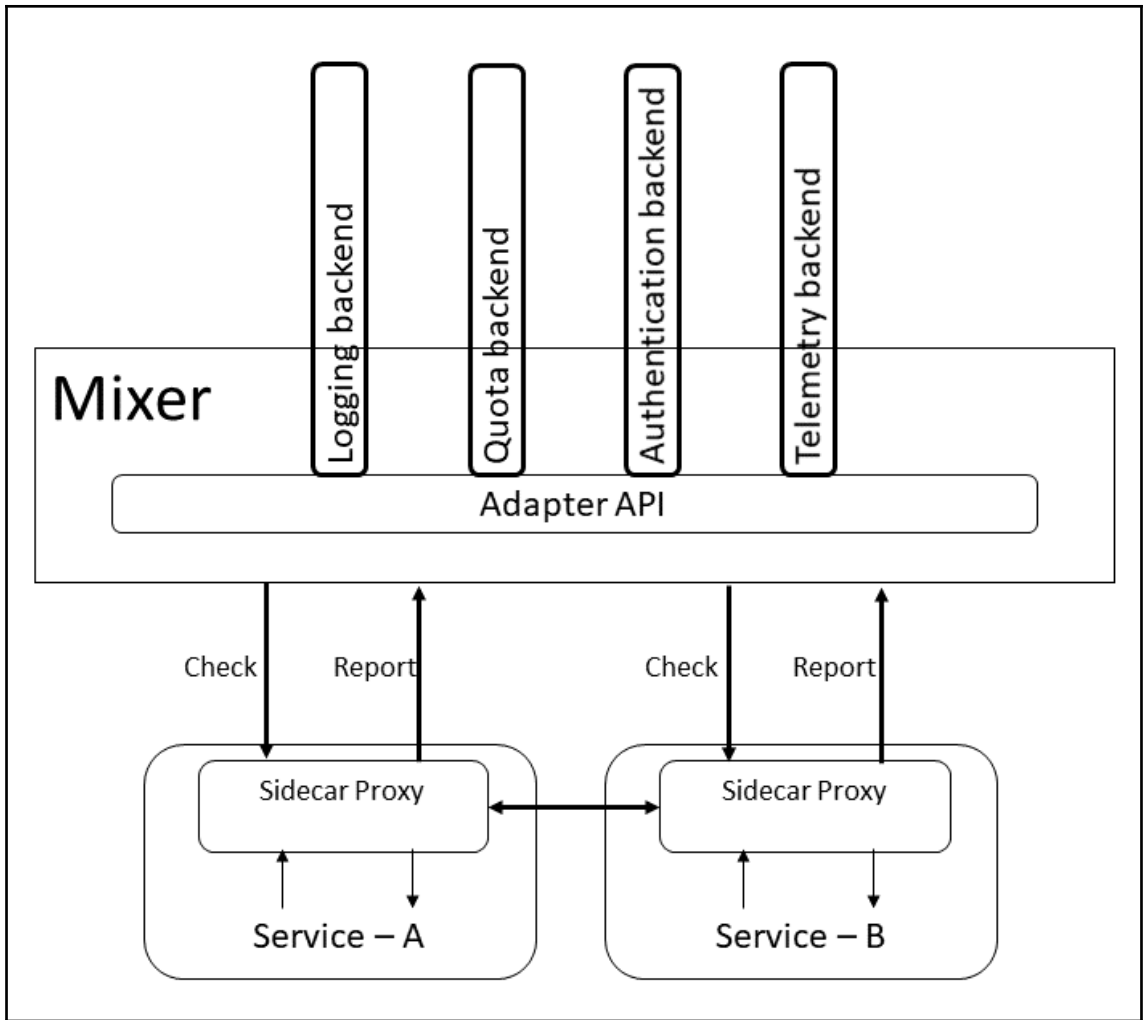


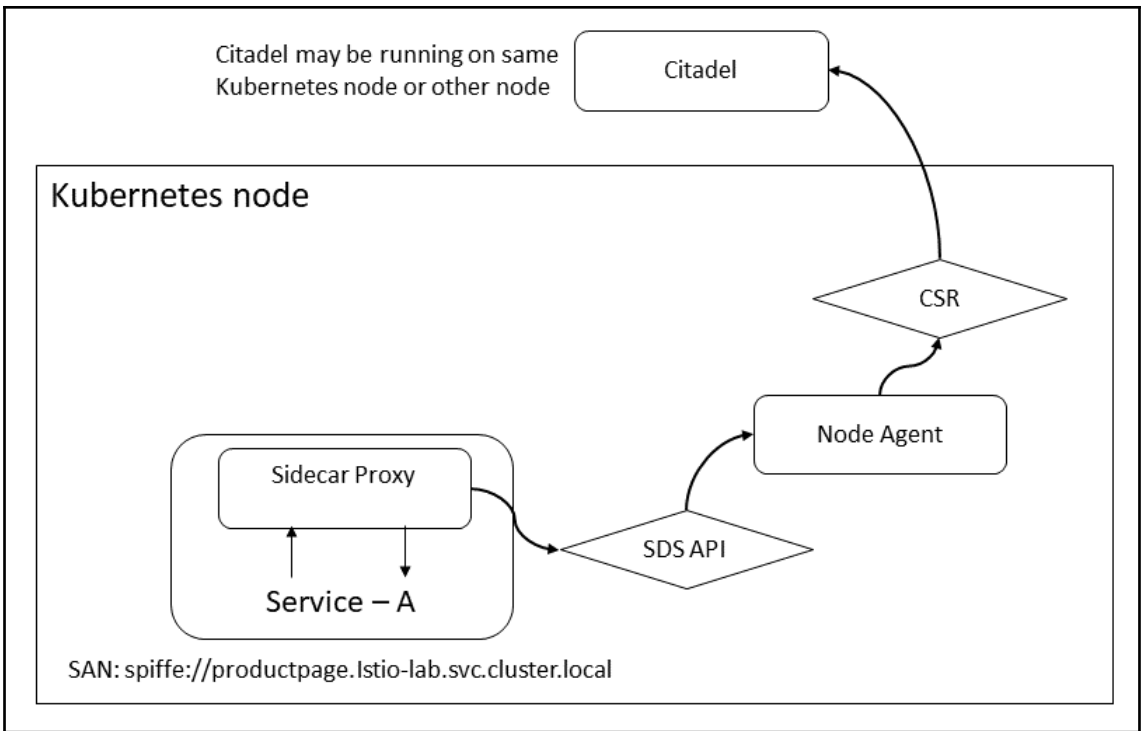
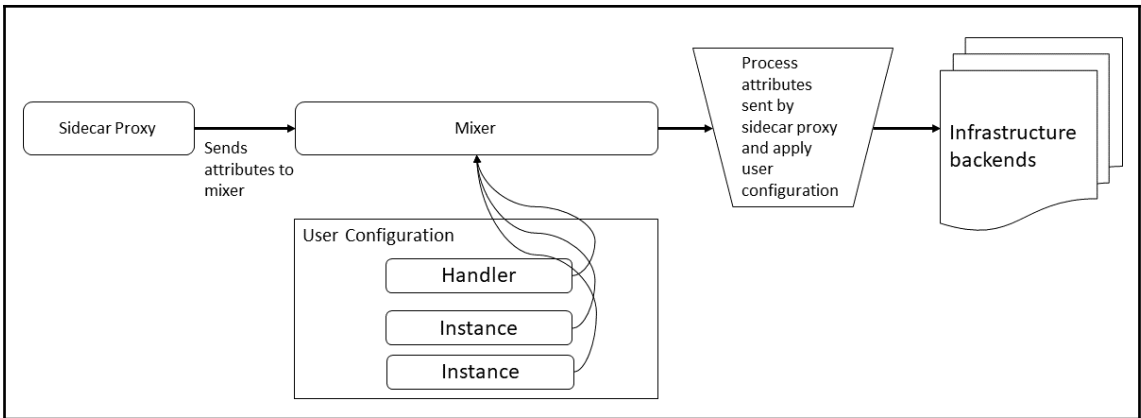


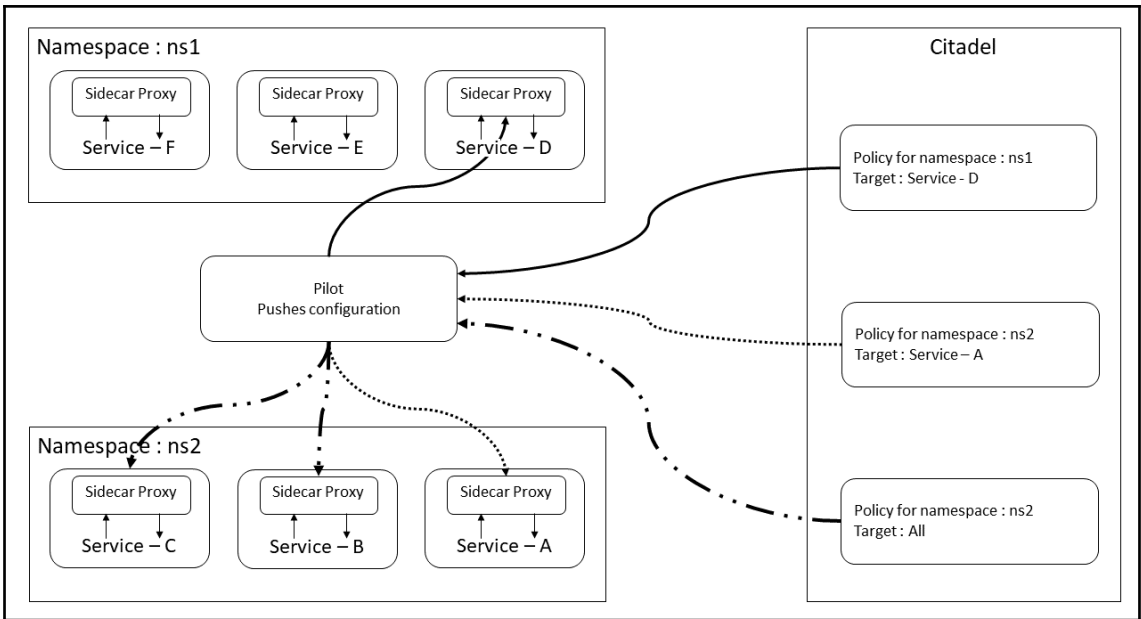
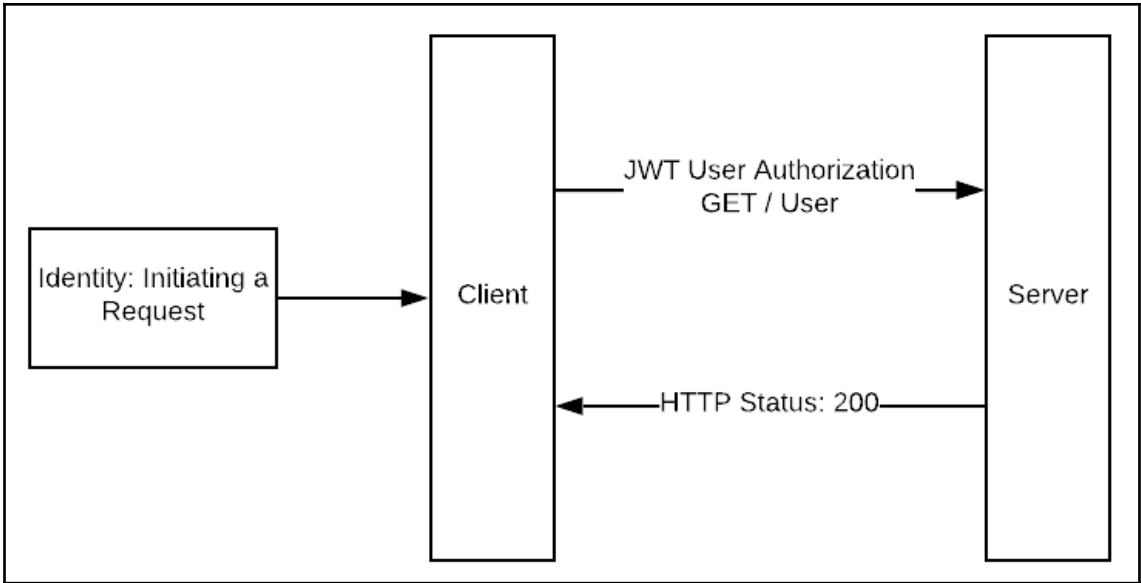


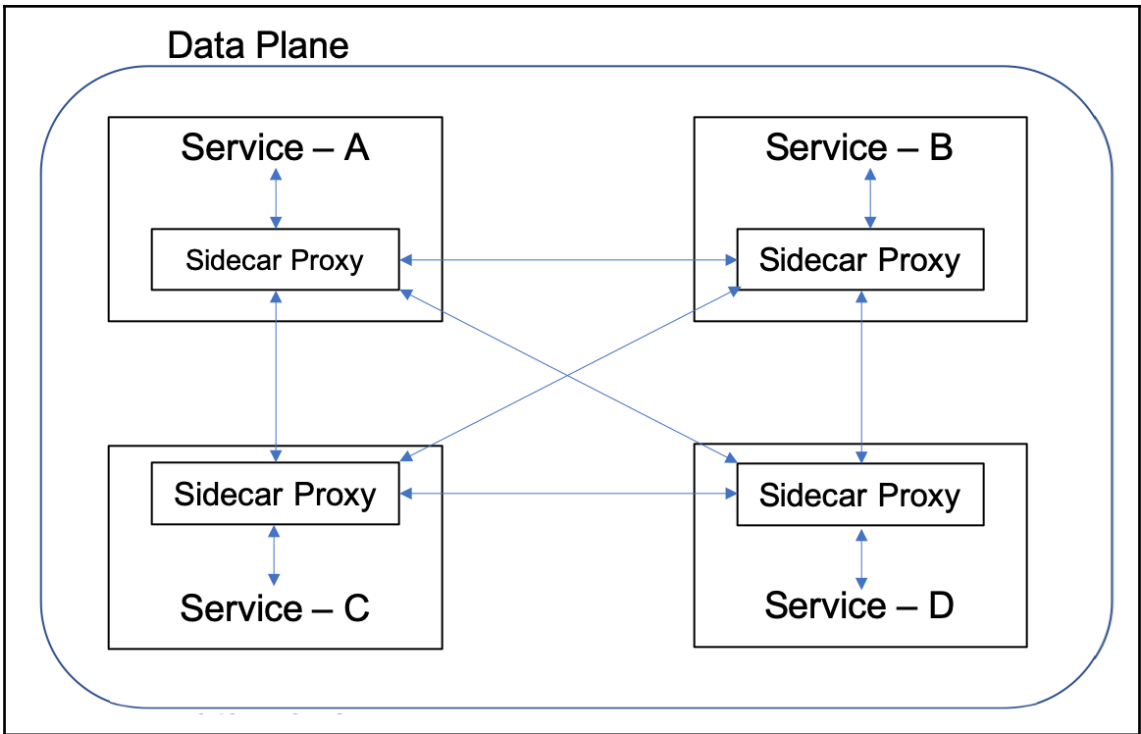


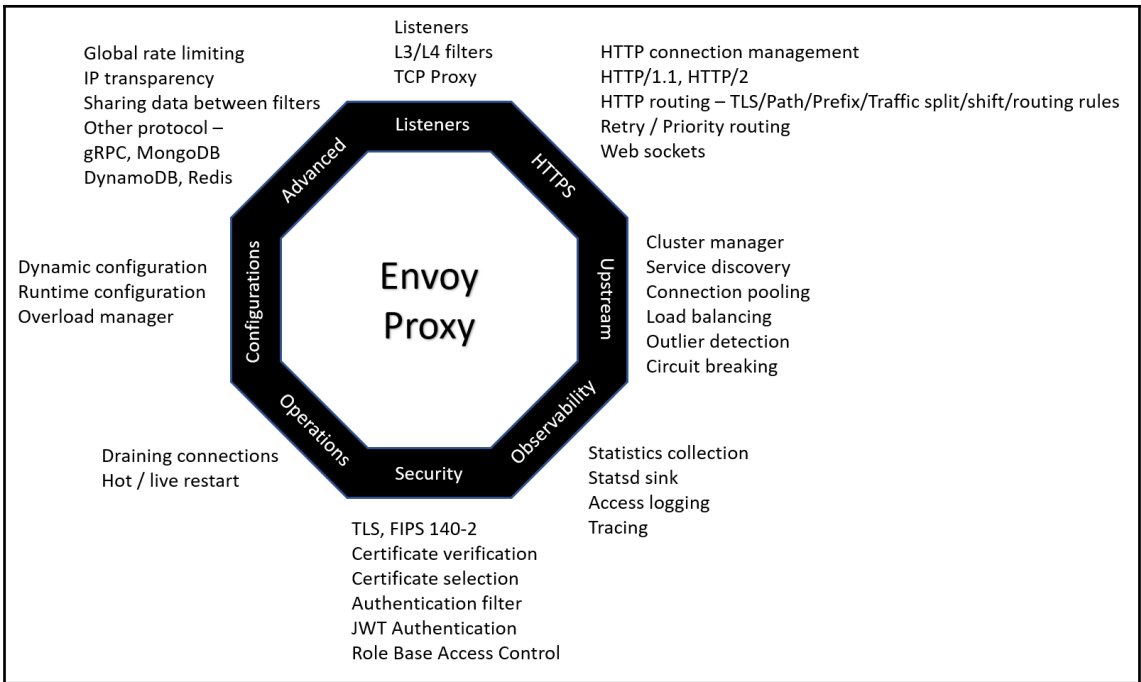




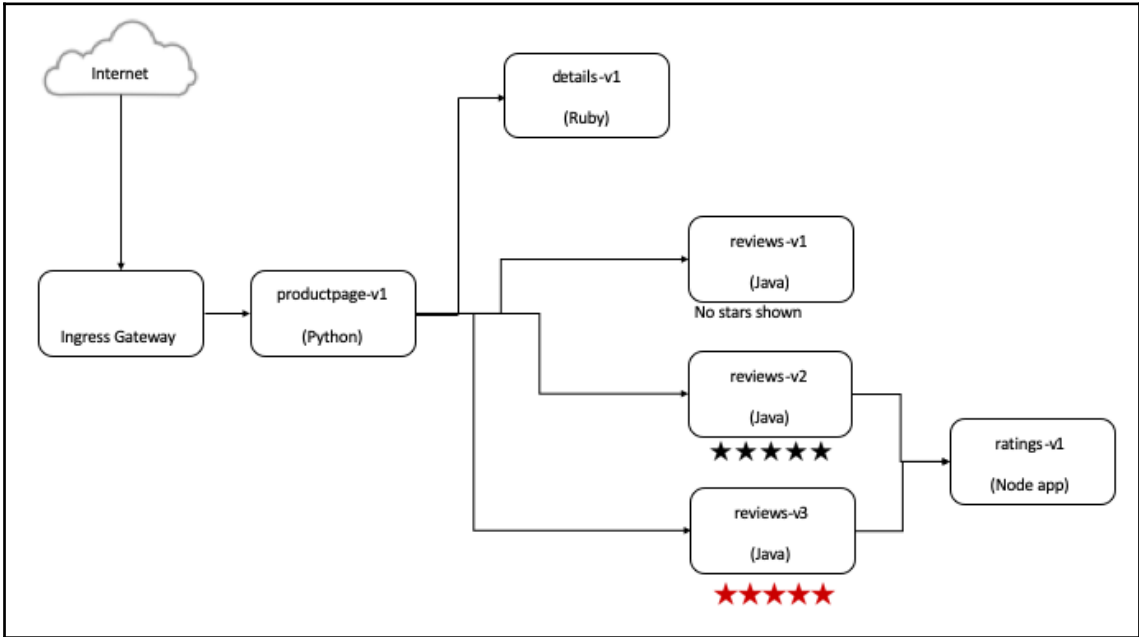








Chapter 8: Installing a Demo Application



productpage microservice

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

← **details microservice**

Book Reviews

reviews microservice ↓

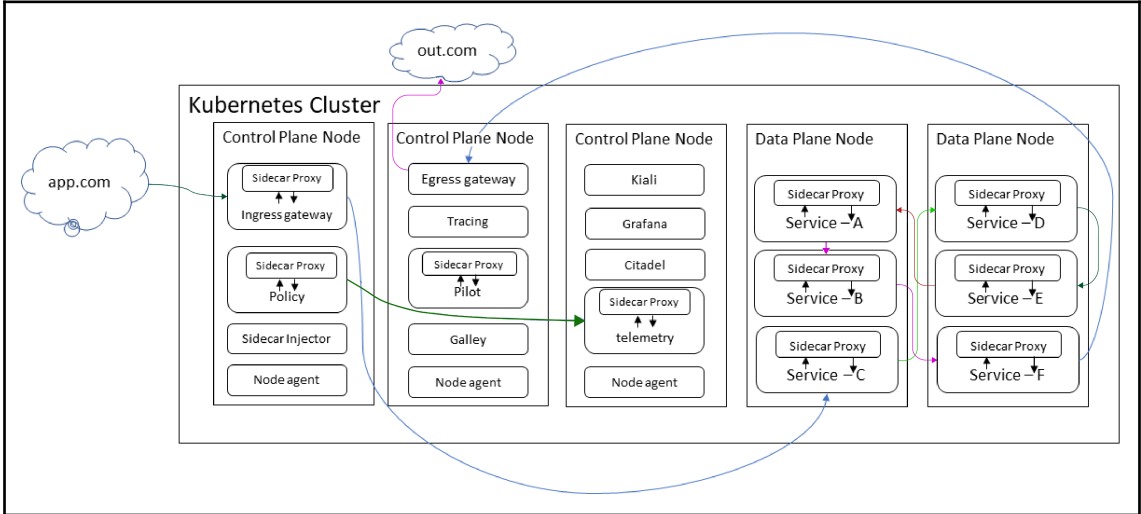
An extremely entertaining play by Shakespeare. The slapstick humour is refreshing!

— Reviewer1
★★★★★ ← **ratings microservice**

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

— Reviewer2
★★★★☆

Chapter 10: Exploring Istio Traffic Management Capabilities



Name	Status	Type	Initiator	Size	Time	Waterfall
productpage	200	docu...	Other	4.1 KB	6.03 s	
jquery.min.js	304	script	productpage	278 B	19 ms	
bootstrap.min.js	304	script	productpage	279 B	19 ms	
glyphicons-halflings-regular...	304	font	productpage	279 B	9 ms	
data:image/png;base...	200	png	onloadwff.js:71	(from ...)	0 ms	
data:image/png;base...	200	png	onloadwff.js:71	(from ...)	0 ms	
data:image/png;base...	200	png	onloadwff.js:71	(from ...)	0 ms	

Book Reviews

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

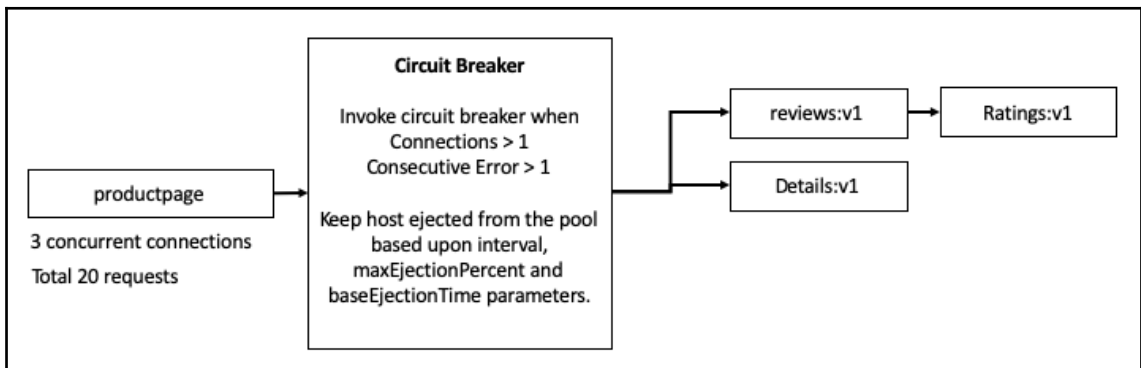
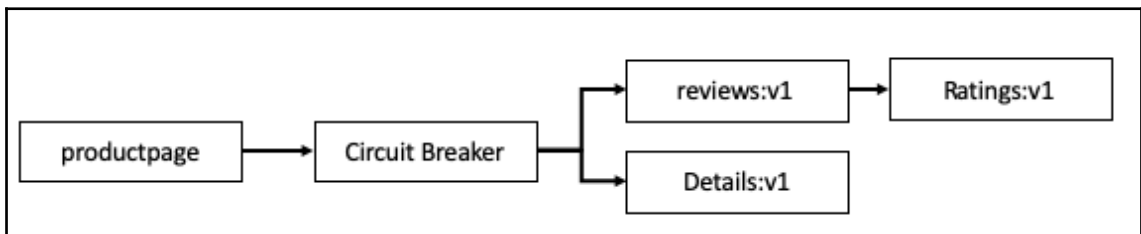
– Reviewer1

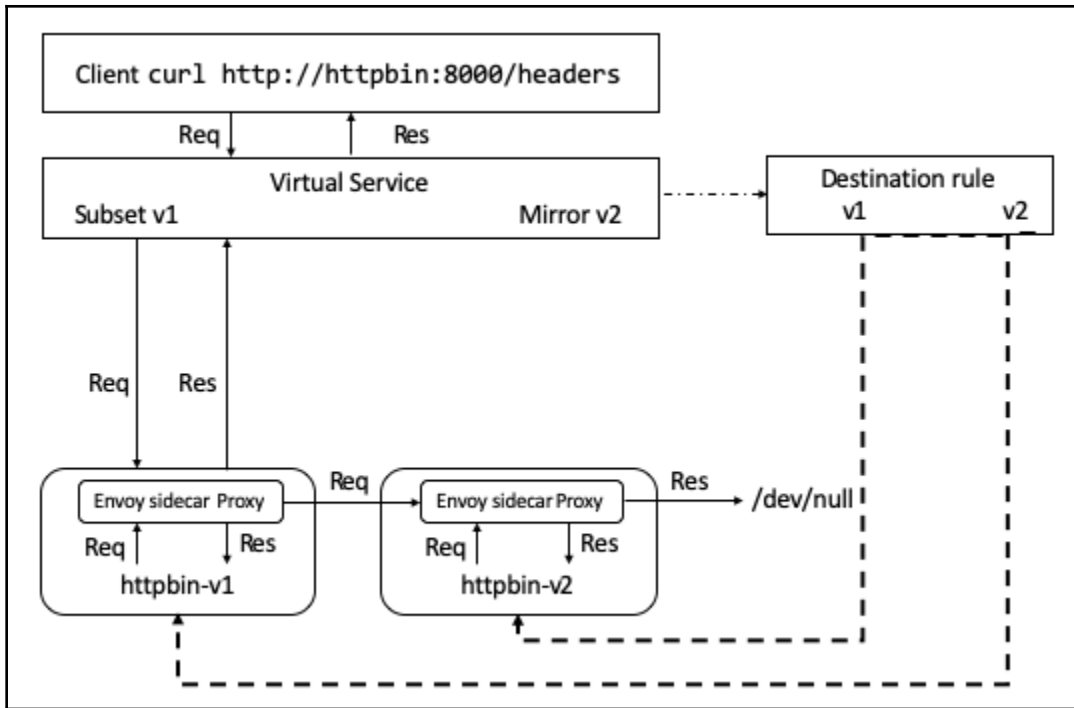
Ratings service is currently unavailable ←

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

– Reviewer2

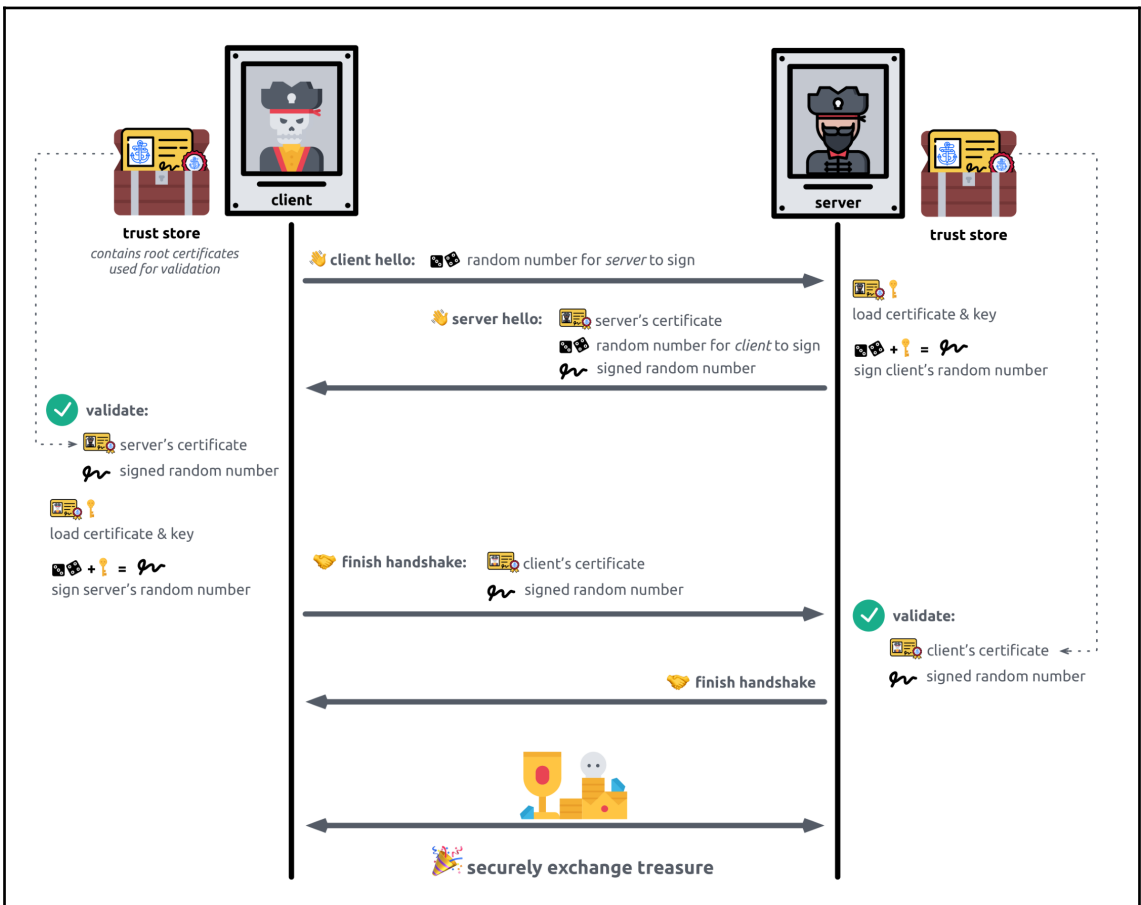
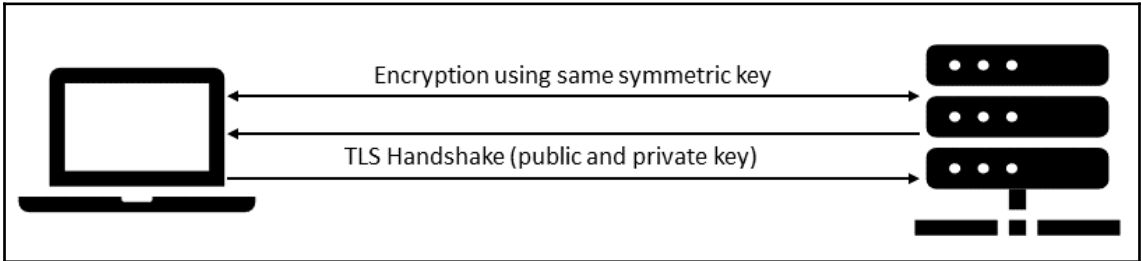
Ratings service is currently unavailable ←

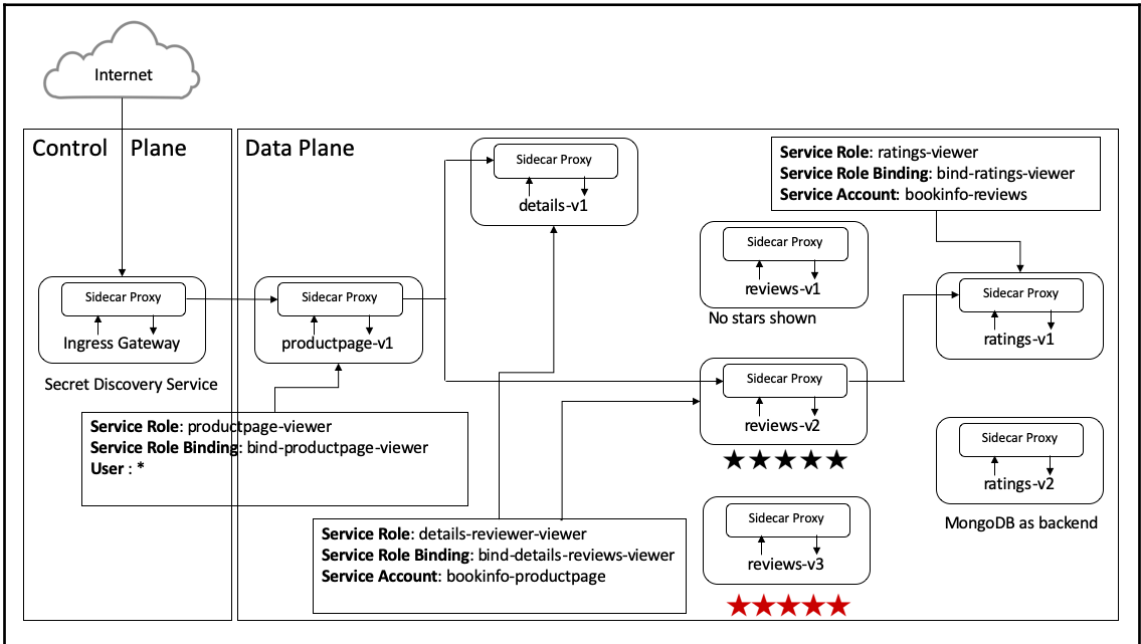
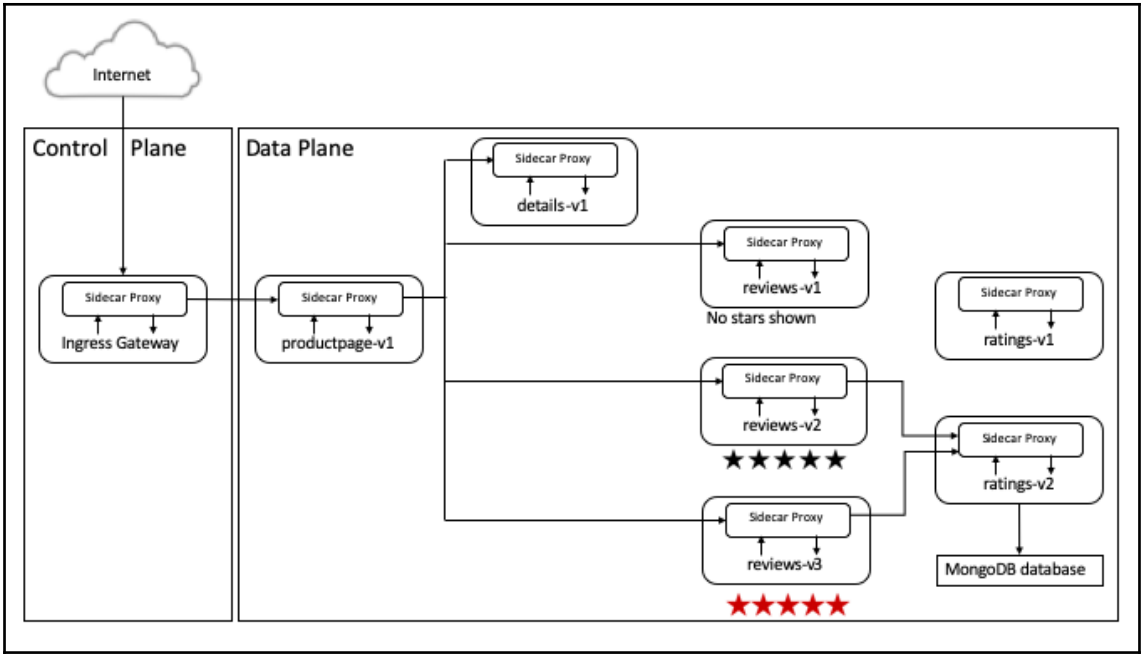




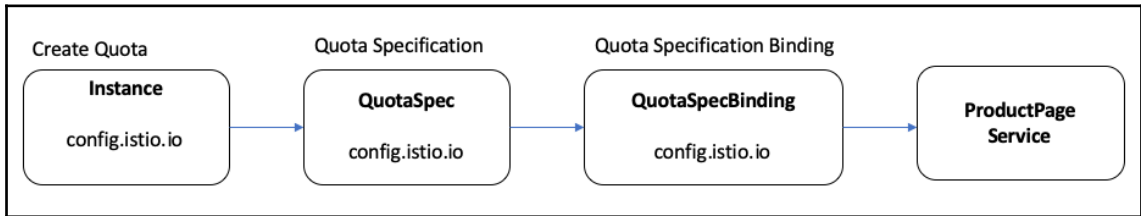
Chapter 11: Exploring Istio Security Features

Features

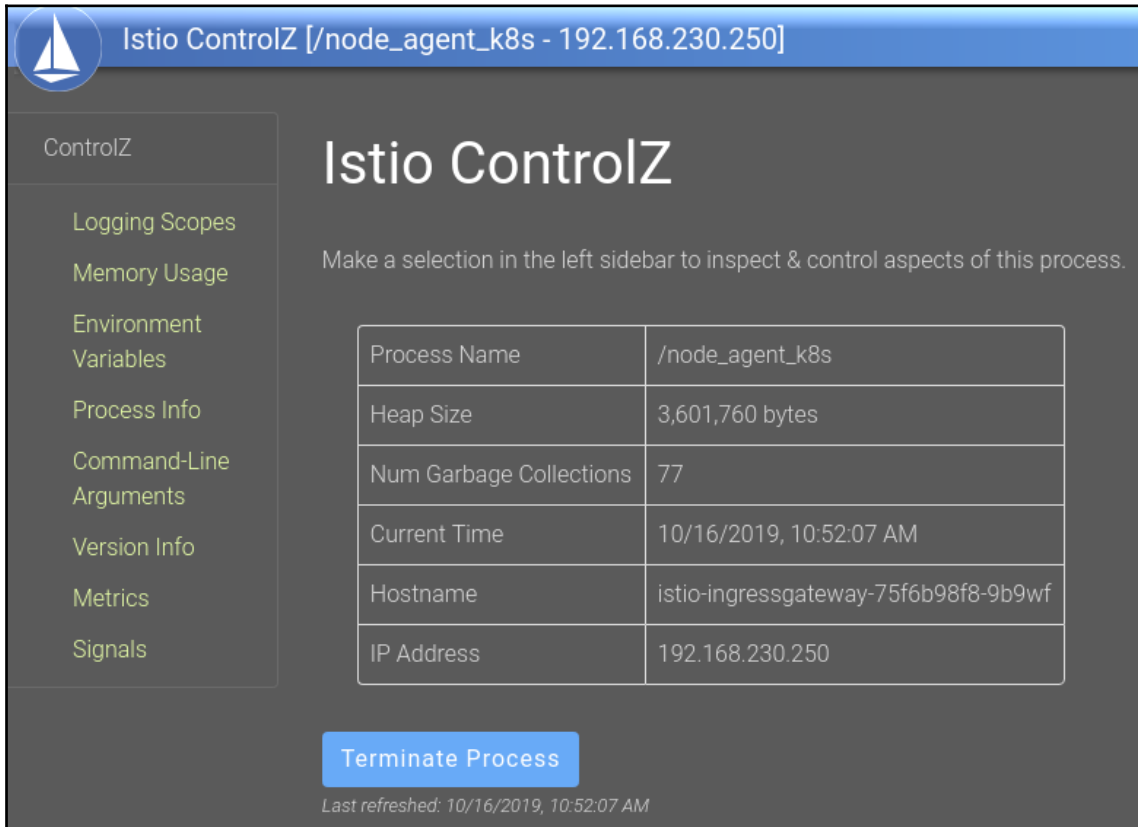




Chapter 12: Enabling Istio Policy Controls



Chapter 13: Exploring Istio Telemetry Features




The screenshot displays the Istio ControlZ web interface. At the top, a blue header bar contains a sailboat icon and the text "Istio ControlZ [/node_agent_k8s - 192.168.230.250]". Below the header, a dark grey sidebar on the left lists navigation options: "ControlZ", "Logging Scopes", "Memory Usage", "Environment Variables", "Process Info", "Command-Line Arguments", "Version Info", "Metrics", and "Signals". The main content area features the title "Istio ControlZ" and a prompt: "Make a selection in the left sidebar to inspect & control aspects of this process." Below this is a table with process details:

Process Name	/node_agent_k8s
Heap Size	3,601,760 bytes
Num Garbage Collections	77
Current Time	10/16/2019, 10:52:07 AM
Hostname	istio-ingressgateway-75f6b98f8-9b9wf
IP Address	192.168.230.250

Below the table is a blue button labeled "Terminate Process". At the bottom of the interface, it states "Last refreshed: 10/16/2019, 10:52:07 AM".

Command	Description
certs	print certs on machine
clusters	upstream cluster status
config_dump	dump current Envoy configs (experimental)
contention	dump current Envoy mutex contention stats (if enabled)
<code>cpuprofiler</code>	enable/disable the CPU profiler
<code>healthcheck/fail</code>	cause the server to fail health checks
<code>healthcheck/ok</code>	cause the server to pass health checks
<code>heapprofiler</code>	enable/disable the heap profiler
help	print out list of admin commands
hot_restart_version	print the hot restart compatibility version
listeners	print listener info
<code>logging</code>	query/change logging levels
memory	print current allocation/heap usage
<code>quitquitquit</code>	exit the server
ready	print server state, return 200 if LIVE, otherwise return 503
<code>reset_counters</code>	reset all counters to zero
runtime	print runtime values
<code>runtime_modify</code>	modify runtime values
server_info	print server version/status information
stats	print server stats
stats/prometheus	print server stats in prometheus format

Enable query history

istio_double_request_count 

Load time: 20ms
Resolution: 14s
Total time series: 30

Execute istio_build

Graph Console

Element	Value
istio_double_request_count{destination="details-v1",instance="10.1.230.245:42422",job="istio-mesh",message="twice the fun!",reporter="client",source="productpage-v1"}	10
istio_double_request_count{destination="details-v1",instance="10.1.230.245:42422",job="istio-mesh",message="twice the fun!",reporter="server",source="productpage-v1"}	10
istio_double_request_count{destination="istio-policy",instance="10.1.230.245:42422",job="istio-mesh",message="twice the fun!",reporter="server",source="details-v1"}	4
istio_double_request_count{destination="istio-policy",instance="10.1.230.245:42422",job="istio-mesh",message="twice the fun!",reporter="server",source="istio-ingressgateway"}	6
istio_double_request_count{destination="istio-policy",instance="10.1.230.245:42422",job="istio-mesh",message="twice the fun!",reporter="server",source="productpage-v1"}	16
istio_double_request_count{destination="istio-policy",instance="10.1.230.245:42422",job="istio-mesh",message="twice the fun!",reporter="server",source="ratings-v2"}	6
istio_double_request_count{destination="istio-policy",instance="10.1.230.245:42422",job="istio-mesh",message="twice the fun!",reporter="server",source="reviews-v2"}	2
istio_double_request_count{destination="istio-policy",instance="10.1.230.245:42422",job="istio-mesh",message="twice the fun!",reporter="server",source="reviews-v3"}	2
istio_double_request_count{destination="istio-telemetry",instance="10.1.230.245:42422",job="istio-mesh",message="twice the fun!",reporter="server",source="details-v1"}	8

Enable query history

istio_monqo_received_bytes 

Load time: 24ms
Resolution: 14s
Total time series: 1

Execute - insert metric at cursor -

Graph Console

Element	Value
istio_mongo_received_bytes{destination_version="v1",instance="10.1.230.250:42422",job="istio-mesh",source_service="ratings-v2",source_version="v2"}	1396

[Remove Graph](#)

Enable query history

istio_requests_total{destination_service="productpage.istio-lab.svc.cluster.local"} ←

Load time: 8ms
Resolution: 14s
Total time series: 2

Execute - insert metric at cursor -

Graph Console

Element	Value
istio_requests_total{connection_security_policy="mutual_tls",destination_app="productpage",destination_principal="cluster.local/ns/istio-lab/sa/bookinfo-productpage",destination_service="productpage.istio-lab.svc.cluster.local",destination_service_name="productpage",destination_service_namespace="istio-lab",destination_version="v1",destination_workload="productpage-v1",destination_workload_namespace="istio-lab",instance="10.1.230.245:42422",job="istio-mesh",permissive_response_code="none",permissive_response_policyid="none",reporter="destination",request_protocol="http",response_code="200",response_flags="-",source_app="istio-ingressgateway",source_principal="cluster.local/ns/istio-system/sa/istio-ingressgateway-service-account",source_version="unknown",source_workload="istio-ingressgateway",source_workload_namespace="istio-system"}	6
istio_requests_total{connection_security_policy="unknown",destination_app="productpage",destination_principal="unknown",destination_service="productpage.istio-lab.svc.cluster.local",destination_service_name="productpage",destination_service_namespace="istio-lab",destination_version="v1",destination_workload="productpage-v1",destination_workload_namespace="istio-lab",instance="10.1.230.245:42422",job="istio-mesh",permissive_response_code="none",permissive_response_policyid="none",reporter="source",request_protocol="http",response_code="200",response_flags="-",source_app="istio-ingressgateway",source_principal="unknown",source_version="unknown",source_workload="istio-ingressgateway",source_workload_namespace="istio-system"}	6

[Remove Graph](#)

Enable query history

rate(istio_requests_total{destination_service=~"productpage.*", response_code="200"}[5m]) ←

Load time: 22ms
Resolution: 14s
Total time series: 2

Execute - insert metric at cursor -

Graph Console

Element	Value
{connection_security_policy="mutual_tls",destination_app="productpage",destination_principal="cluster.local/ns/istio-lab/sa/bookinfo-productpage",destination_service="productpage.istio-lab.svc.cluster.local",destination_service_name="productpage",destination_service_namespace="istio-lab",destination_version="v1",destination_workload="productpage-v1",destination_workload_namespace="istio-lab",instance="10.1.230.245:42422",job="istio-mesh",permissive_response_code="none",permissive_response_policyid="none",reporter="destination",request_protocol="http",response_code="200",response_flags="-",source_app="istio-ingressgateway",source_principal="cluster.local/ns/istio-system/sa/istio-ingressgateway-service-account",source_version="unknown",source_workload="istio-ingressgateway",source_workload_namespace="istio-system"}	0.042105263157894736
{connection_security_policy="unknown",destination_app="productpage",destination_principal="unknown",destination_service="productpage.istio-lab.svc.cluster.local",destination_service_name="productpage",destination_service_namespace="istio-lab",destination_version="v1",destination_workload="productpage-v1",destination_workload_namespace="istio-lab",instance="10.1.230.245:42422",job="istio-mesh",permissive_response_code="none",permissive_response_policyid="none",reporter="source",request_protocol="http",response_code="200",response_flags="-",source_app="istio-ingressgateway",source_principal="unknown",source_version="unknown",source_workload="istio-ingressgateway",source_workload_namespace="istio-system"}	0.042105263157894736

[Remove Graph](#)

Prometheus Alerts Graph Status Help

Targets

All Unhealthy

citadel (1/1 up) [show less](#)

Endpoint	State	Labels	Last Scrape
http://10.1.230.253:15014/metrics	UP	instance="10.1.230.253:15014"	13.809s ago

envoy-stats (15/15 up) [show more](#)

galley (1/1 up) [show more](#)

istio-mesh (1/1 up) [show less](#)

Endpoint	State	Labels	Last Scrape
http://10.1.230.250:42422/metrics	UP	instance="10.1.230.250:42422"	12.164s ago

istio-policy (1/1 up) [show less](#)

Endpoint	State	Labels	Last Scrape
http://10.1.230.200:15014/metrics	UP	instance="10.1.230.200:15014"	14.41s ago

istio-telemetry (1/1 up) [show more](#)


kubernetes-apiservers (1/1 up) [show more](#)

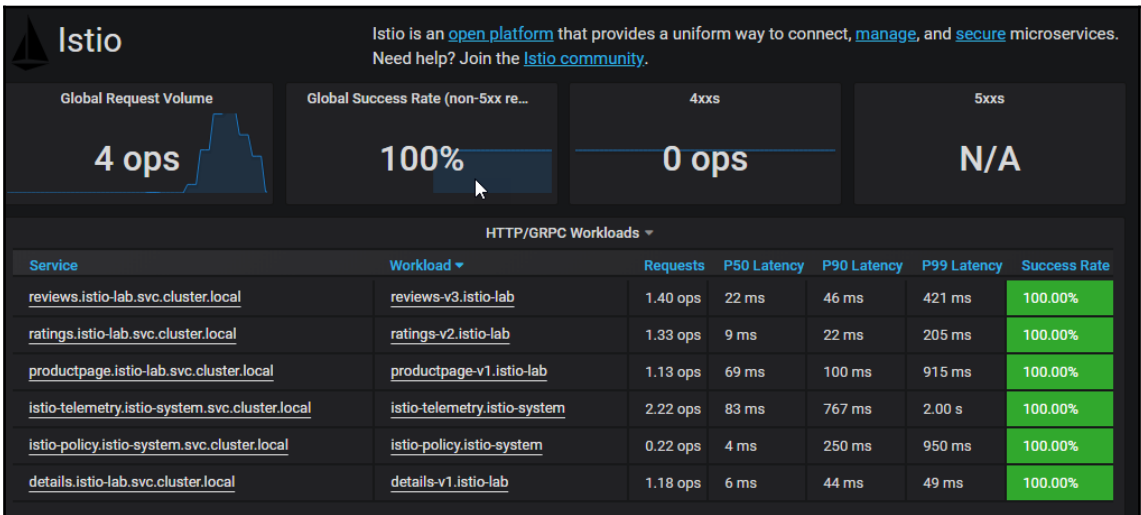
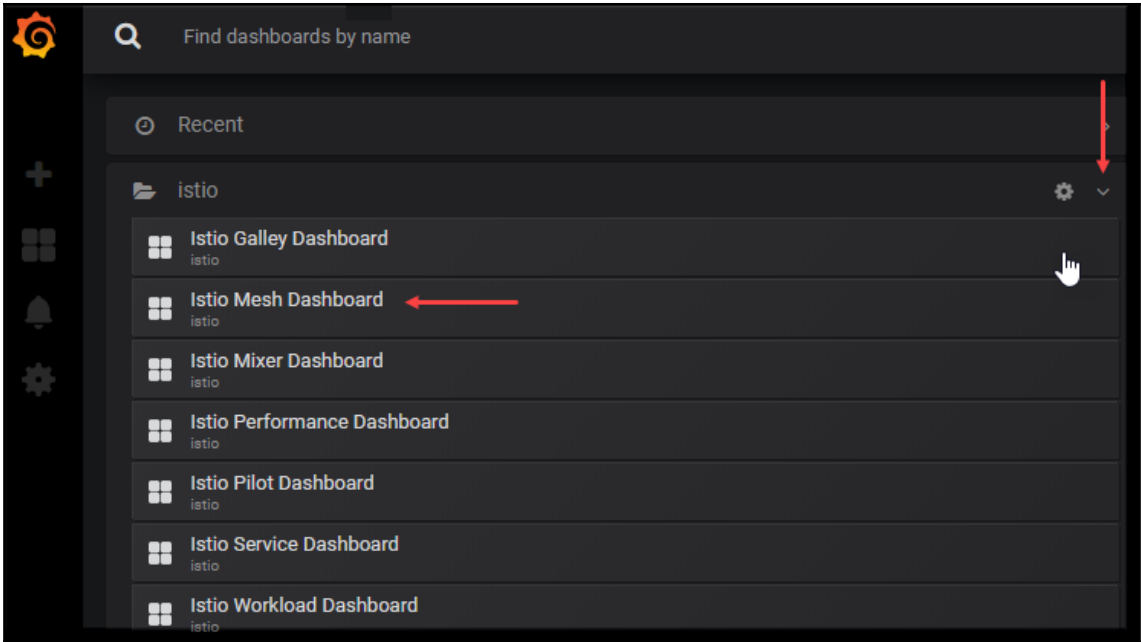
Configuration

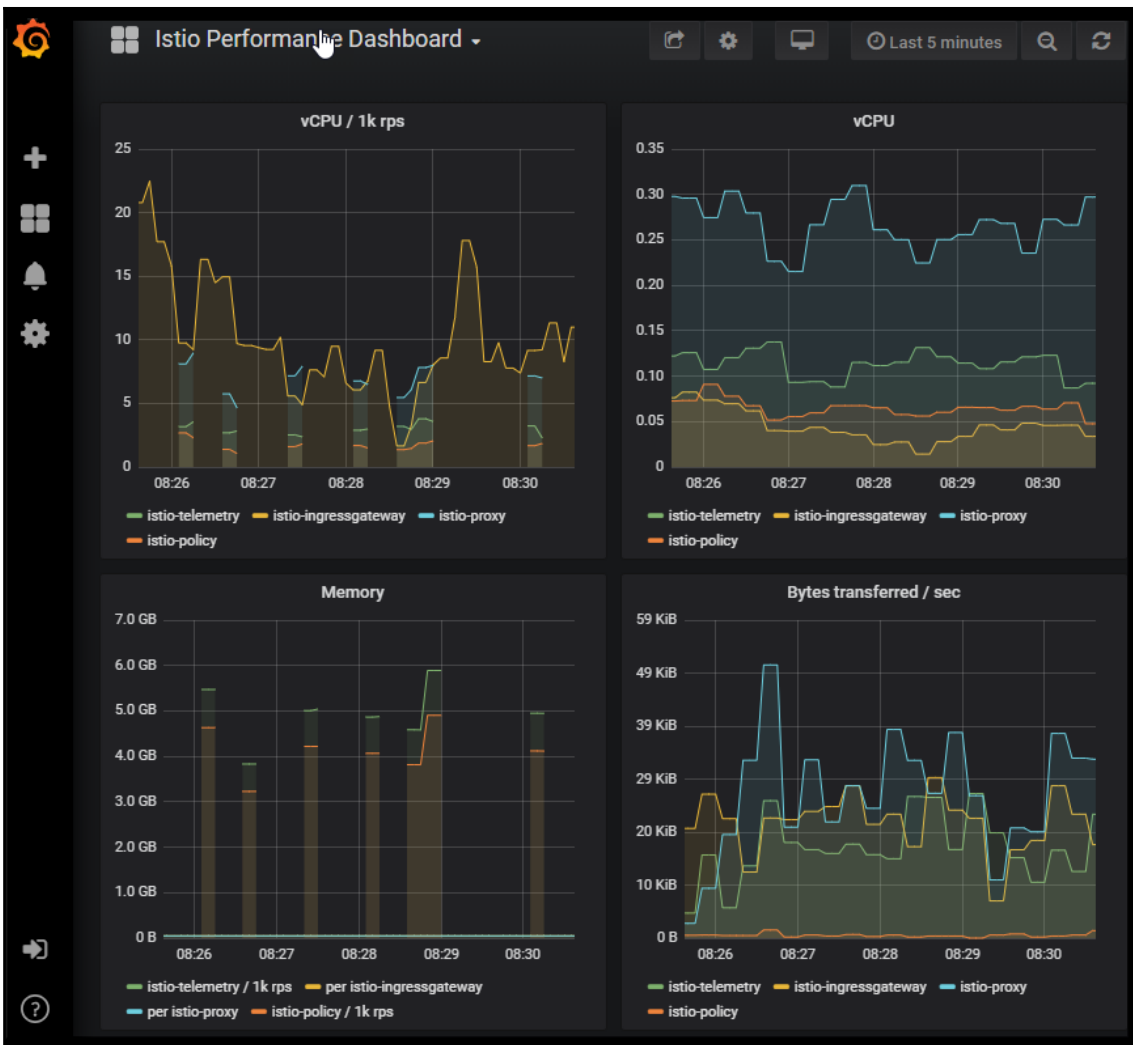
Organization: Main Org.

Data Sources Users Teams Plugins Preferences API Keys

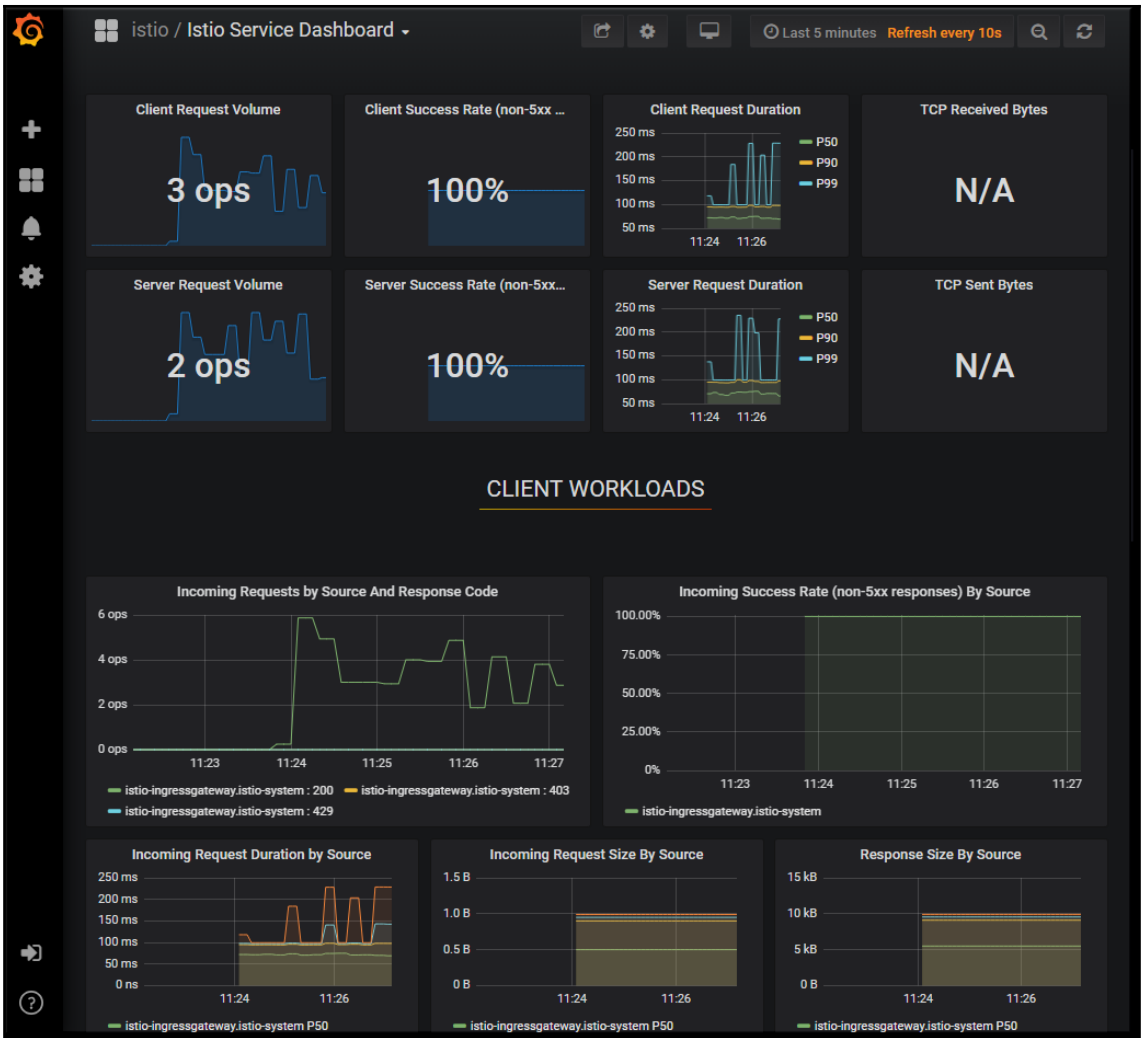
Filter by name or type [Add data source](#)

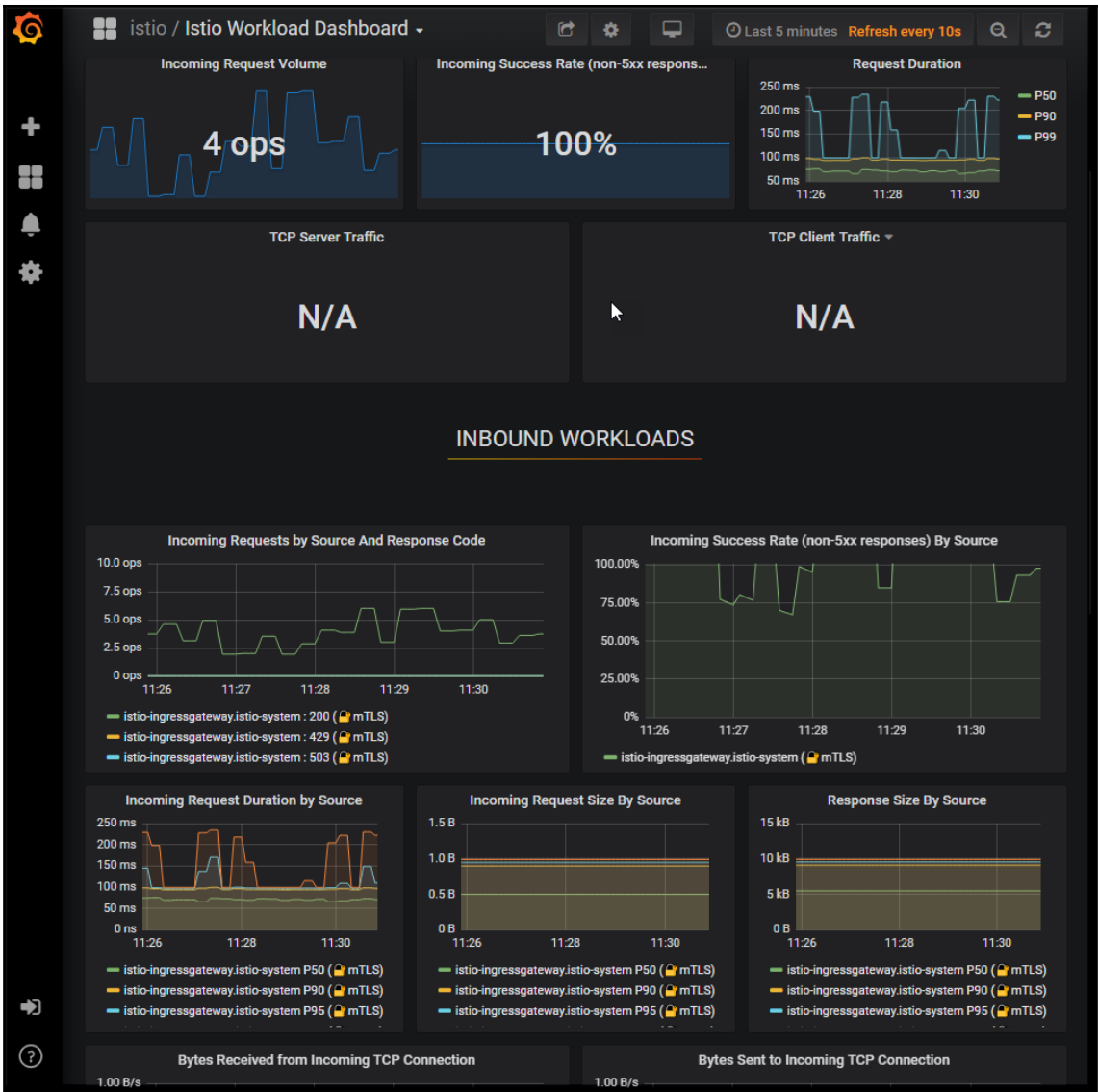
 **Prometheus** default PROMETHEUS
http://prometheus:9090

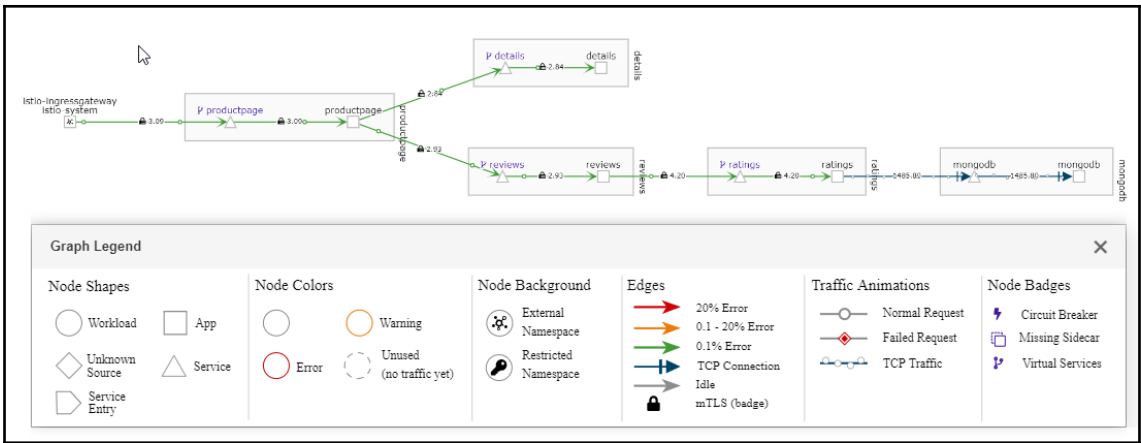


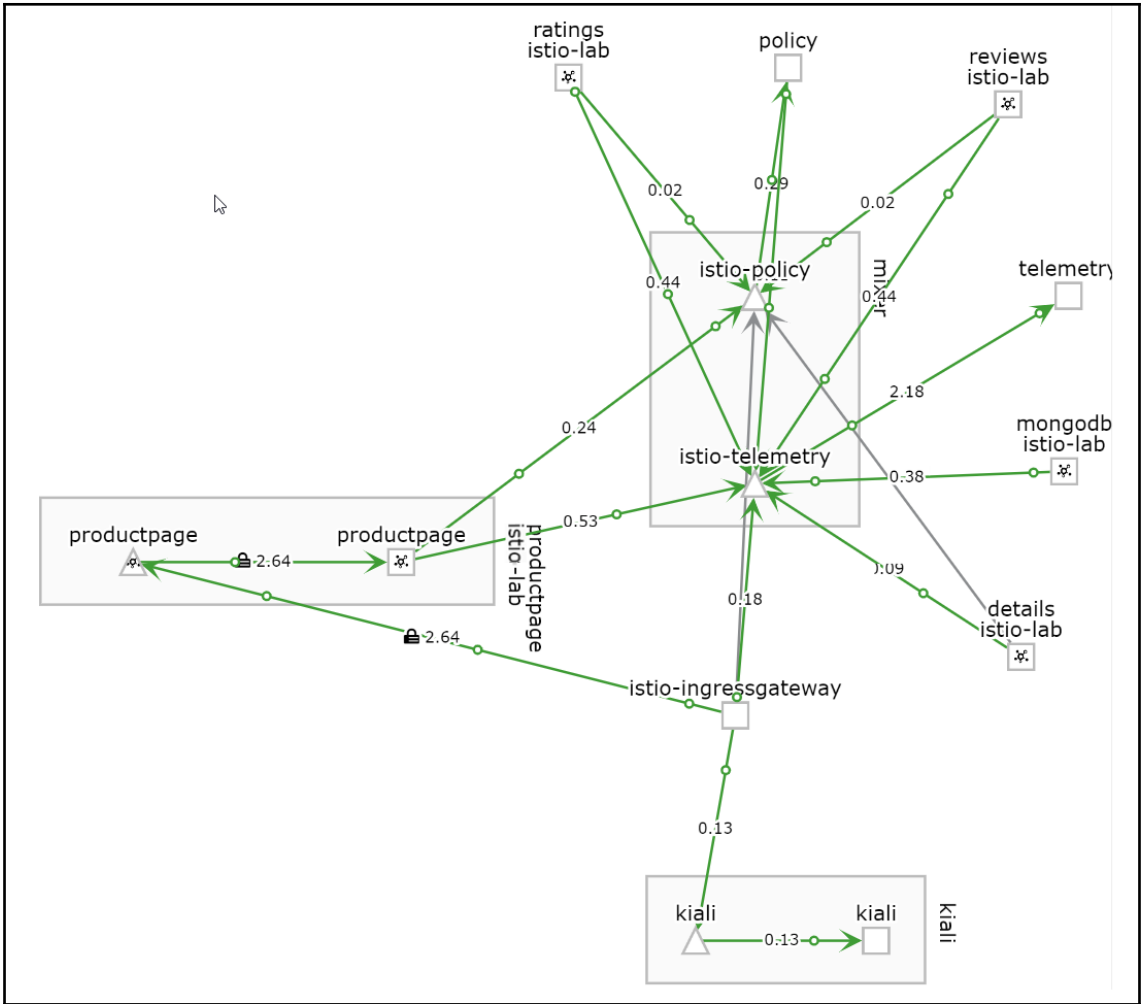


























	details istio-lab	Health: 
	fortio istio-lab	Health: 
	httpbin istio-lab	Health: 
	mongodb istio-lab	Health: 
	productpage istio-lab	Health: 
	ratings istio-lab	Health: 
	reviews istio-lab	Health: 

details

Labels	Ports	Endpoints	Health
app details service details Type ClusterIP IP 10.0.0.89 Created at 4/26/2019, 2:13:48 PM Resource Version 650140	TCP http (9080)	10.1.230.247 : details-v1- bc557b7fc-kd85j	

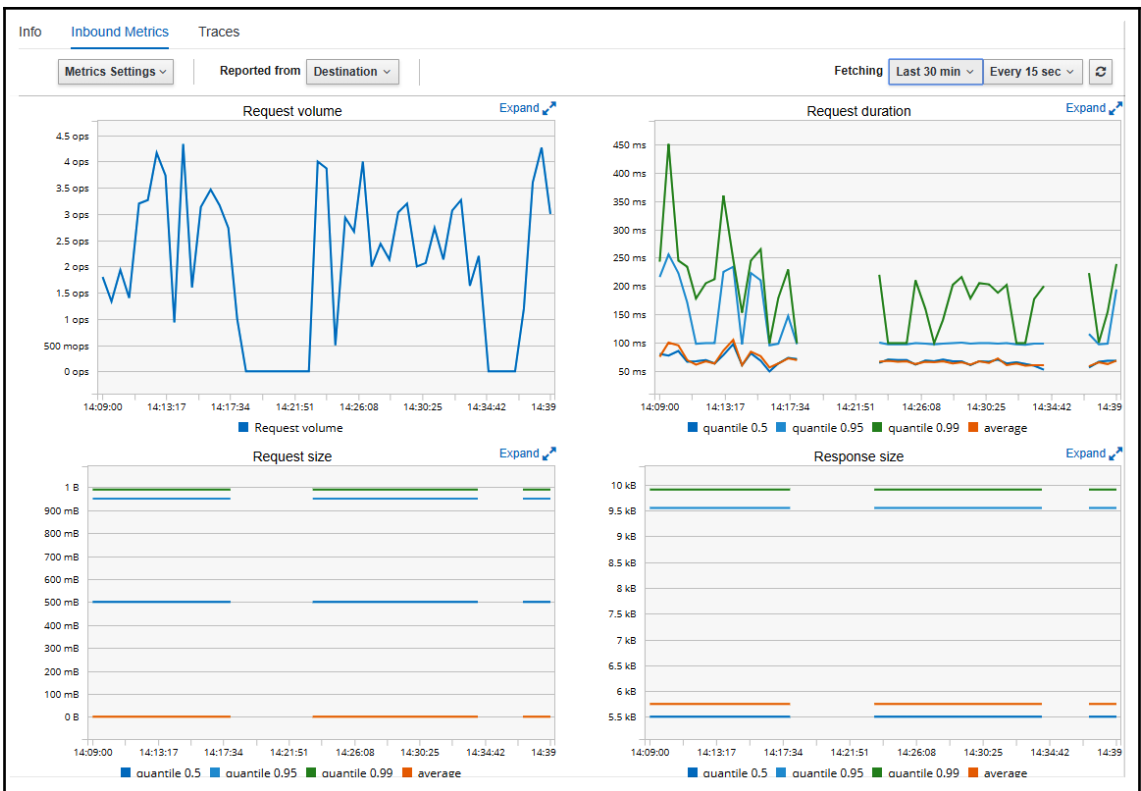
Workloads (1) Source Workloads (1) Virtual Services (1) [Destination Rules \(1\)](#)

Status	Name	Traffic Policy	Subsets	Host	Created at	Resource version	Actions
	details	Tls [Mode] ISTIO_MUTUAL	v1 version v1 v2 version v2	details	4/30/2019, 12:02:27 AM	986875	View YAML

Overview [YAML](#)

```

1 metadata:
2   name: details
3   namespace: istio-lab
4   selflink: >
5     /apis/networking.istio.io/v1alpha3/namespaces/istio-lab/destinationrules/details
6   uid: c4e6693d-6afc-11e9-8752-00505632f6a0
7   resourceVersion: '986875'
8   generation: 1
9   creationTimestamp: '2019-04-30T04:02:27Z'
10  annotations:
11    kubectl.kubernetes.io/last-applied-configuration: >
12      {"apiVersion":"networking.istio.io/v1alpha3","kind":"DestinationRule","metadata":
13  spec:
14    host: details
15    trafficPolicy:
16      tls:
17        mode: ISTIO_MUTUAL
18    subsets:
19      - labels:
20        version: v1
21        name: v1
22      - labels:
23        version: v2
24        name: v2
25
  
```



Find Traces

Service (10)

Operation (7)

Tags ?

Lookback

Min Duration

Max Duration

Limit Results

Duration

Time

150ms

100ms

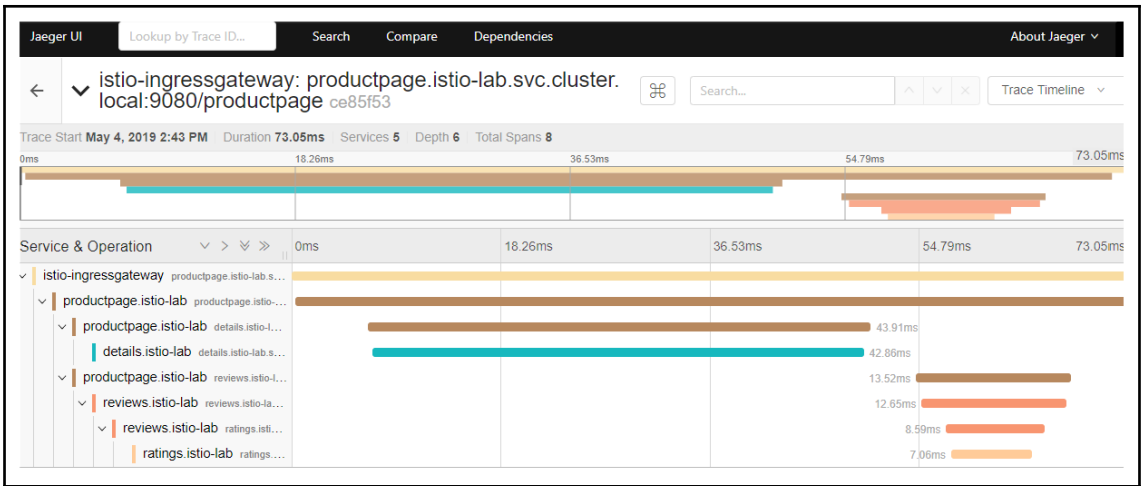
50ms

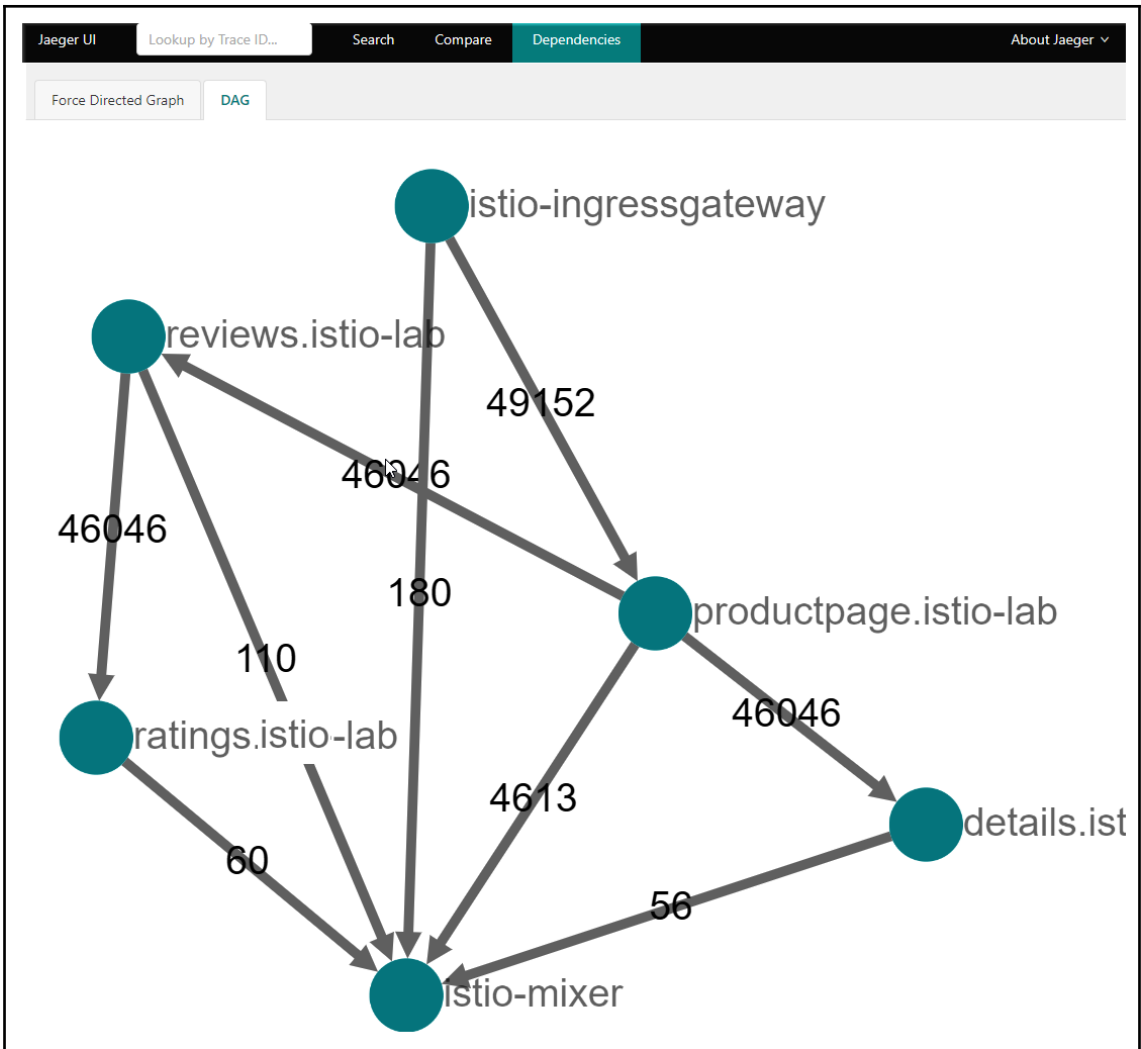
01:30:00 pm 01:46:40 pm 02:03:20 pm 02:20:00 pm 02:36:40 pm

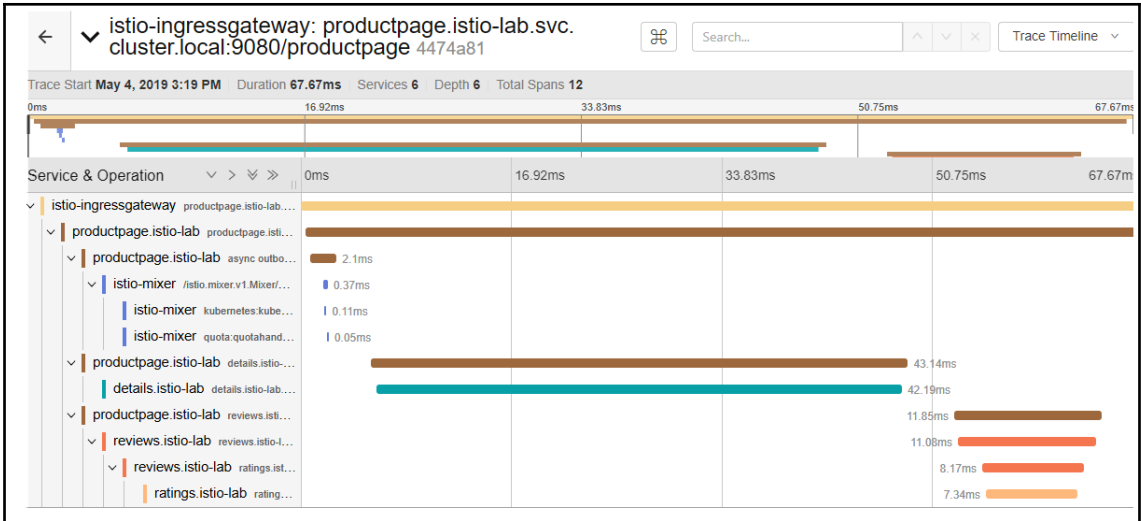
20 Traces Sort:

Compare traces by selecting result items

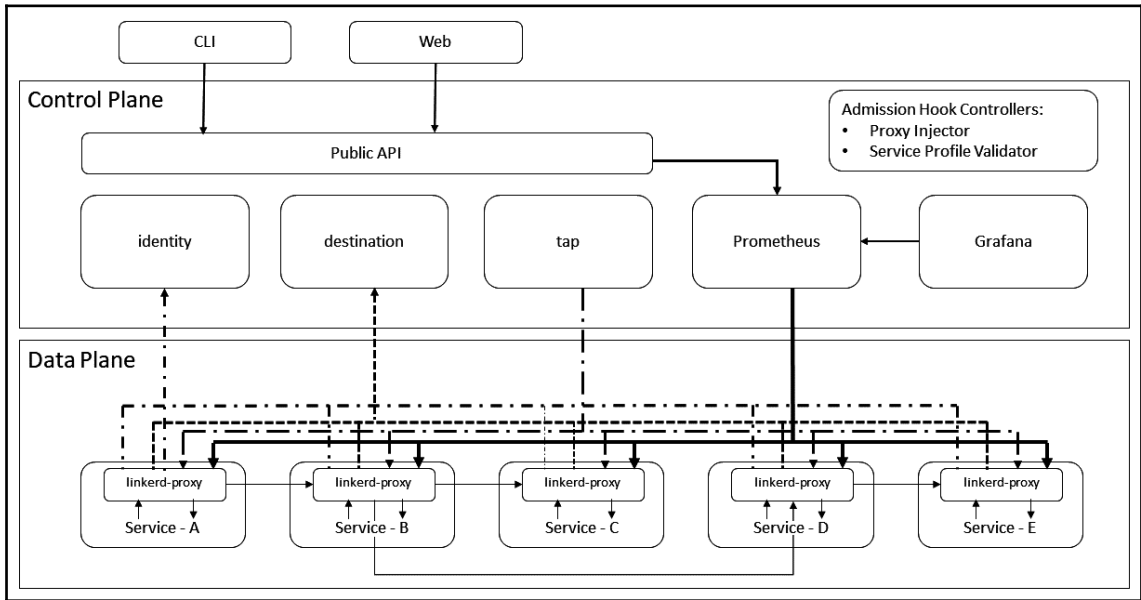
<input type="checkbox"/>	istio-ingressgateway: productpage.istio-lab.svc.cluster.local:9080/productpage	ce85f53 73.05ms
8 Spans	<div style="display: flex; gap: 5px;"> <div style="background-color: #00bcd4; padding: 2px;">details.istio-lab (1)</div> <div style="background-color: #ffc107; padding: 2px;">istio-ingressgateway (1)</div> <div style="background-color: #795548; padding: 2px;">productpage.istio-lab (3)</div> </div> <div style="display: flex; gap: 5px; margin-top: 2px;"> <div style="background-color: #ff9800; padding: 2px;">ratings.istio-lab (1)</div> <div style="background-color: #e91e63; padding: 2px;">reviews.istio-lab (2)</div> </div>	Today 2:43:24 pm 14 minutes ago
<input type="checkbox"/>	istio-ingressgateway: productpage.istio-lab.svc.cluster.local:9080/productpage	151.92ms
12 Spans	<div style="display: flex; gap: 5px;"> <div style="background-color: #00bcd4; padding: 2px;">details.istio-lab (1)</div> <div style="background-color: #ffc107; padding: 2px;">istio-ingressgateway (1)</div> <div style="background-color: #3f51b5; padding: 2px;">istio-mixer (3)</div> </div> <div style="display: flex; gap: 5px; margin-top: 2px;"> <div style="background-color: #795548; padding: 2px;">productpage.istio-lab (4)</div> <div style="background-color: #ff9800; padding: 2px;">ratings.istio-lab (1)</div> <div style="background-color: #e91e63; padding: 2px;">reviews.istio-lab (2)</div> </div>	Today 2:43:02 pm 14 minutes ago
<input type="checkbox"/>	istio-ingressgateway: productpage.istio-lab.svc.cluster.local:9080/productpage	72.77ms







Chapter 14: Understanding the Linkerd Service Mesh



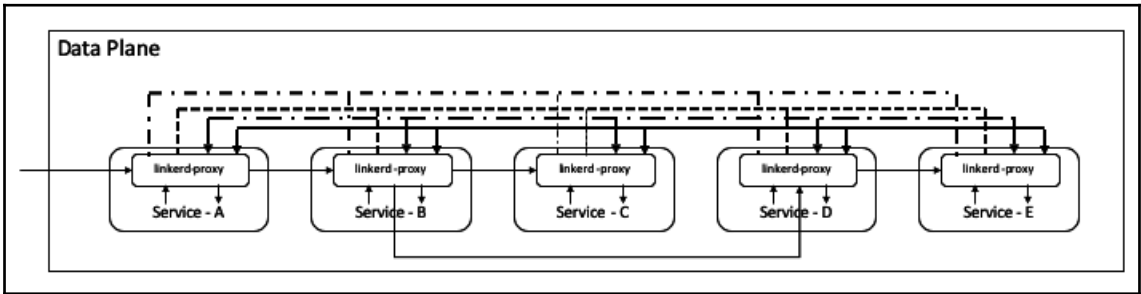
LINKERD <
linkerd
meshed
^

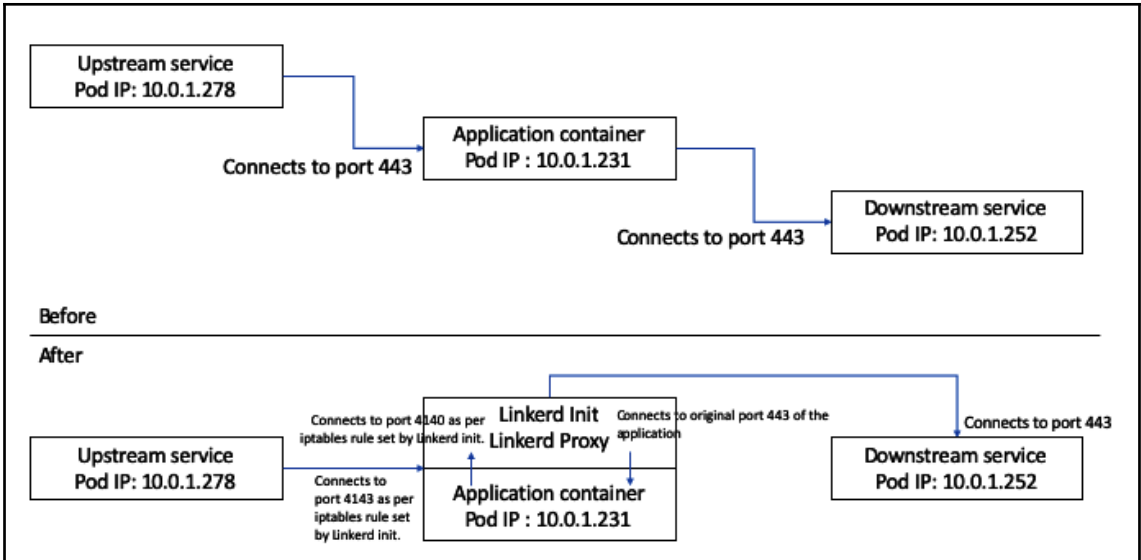
- 🏠 Overview
- 🔍 Tap
- ☰ Top
- 🔗 Top Routes
- ☁ Service Mesh
- ☰ Resources ▼
- 📖 Documentation
- 😊 Community
- ✉ Join the Mailing List
- 🗯 Join us on Slack
- 🔧 File an Issue

Namespace: linkerd

Deployments ☰

Deployment ↑	↑ Meshed	↑ Success Rate	↑ RPS	↑ P50 Latency	↑ P95 Latency	↑ P99 Latency	Grafana
linkerd-controller	1/1	100.00% ●	2.65	300 ms	907 ms	981 ms	
linkerd-grafana	1/1	100.00% ●	0.3	1 ms	3 ms	3 ms	
linkerd-identity	1/1	100.00% ●	0.3	1 ms	2 ms	2 ms	
linkerd-prometheus	1/1	100.00% ●	49.45	249 ms	481 ms	805 ms	
linkerd-proxy-injector	1/1	100.00% ●	0.2	1 ms	4 ms	4 ms	
linkerd-sp-validator	1/1	100.00% ●	0.2	1 ms	1 ms	1 ms	





LINKERD

- Overview
- Tap
- Top
- Service mesh
- Resources
- All Namespaces
- Deployments
- Pods
- Documentation

Overview

emojivoto ●

Namespace: emojivoto

Deployments 🔍

DEPLOYMENT	MESHED	SR	RPS	P50	P95	P99	TLS	DASH
emoji	1/1 100.00%	🟢	1.25	1 ms	15 ms	19 ms	0.0%	⚙️
vote-bot	1/1 ---	🟡	---	---	---	---	---	⚙️
voting	1/1 83.78%	🔴	0.62	1 ms	2 ms	2 ms	0.0%	⚙️
web	1/1 92.21%	🟡	1.28	2 ms	20 ms	28 ms	0.0%	⚙️

deployment/webapp

Route ↑	Service ↑	↑ Success Rate	↑ RPS	↑ P50 Latency	↑ P95 Latency	↑ P99 Latency
GET /	webapp	100.00% ●	0.47	50 ms	95 ms	99 ms
GET /authors/{id}	webapp	100.00% ●	0.47	30 ms	85 ms	97 ms
GET /books/{id}	webapp	100.00% ●	0.93	25 ms	72 ms	94 ms
POST /authors	webapp	100.00% ●	0.48	37 ms	85 ms	97 ms
POST /authors/{id}/delete	webapp	100.00% ●	0.47	75 ms	188 ms	198 ms
POST /authors/{id}/edit	webapp	---	---	0 s	0 s	0 s
POST /books	webapp	46.28% ●	2.02	43 ms	89 ms	98 ms
POST /books/{id}/delete	webapp	100.00% ●	0.47	27 ms	39 ms	40 ms
POST /books/{id}/edit	webapp	50.00% ●	0.97	86 ms	183 ms	197 ms
[DEFAULT]	webapp	---	0	0 s	0 s	0 s

Chapter 15: Installing Linkerd

The screenshot shows the Linkerd dashboard for the 'linkerd' namespace. The left sidebar contains navigation options: Overview, Tap, Top, Top Routes, Service Mesh, Resources, Debug, Documentation, Community, Join the Mailing List, Join us on Slack, and File an Issue. The main content area displays 'Namespace: linkerd' and a 'meshed' status indicator. Below this is a 'Deployments' table with columns for Deployment, Meshed, Success Rate, RPS, P50 Latency, P95 Latency, P99 Latency, and Grafana. The table lists six deployments: linkerd-controller, linkerd-grafana, linkerd-identity, linkerd-prometheus, linkerd-sp-validator, and linkerd-web. Below the Deployments table is a 'Pods' section with a table header including Pod, Meshed, Success Rate, RPS, P50 Latency, P95 Latency, P99 Latency, and Grafana.

Deployment ↑	↑ Meshed	↑ Success Rate	↑ RPS	↑ P50 Latency	↑ P95 Latency	↑ P99 Latency	Grafana
linkerd-controller	1/1	100.00% ●	3.88	280 ms	833 ms	967 ms	
linkerd-grafana	1/1	100.00% ●	1.27	1 ms	2 ms	2 ms	
linkerd-identity	1/1	100.00% ●	0.3	1 ms	2 ms	2 ms	
linkerd-prometheus	1/1	100.00% ●	66.75	216 ms	472 ms	842 ms	
linkerd-sp-validator	1/1	100.00% ●	0.2	1 ms	1 ms	1 ms	
linkerd-web	1/1	100.00% ●	3.8	311 ms	879 ms	976 ms	

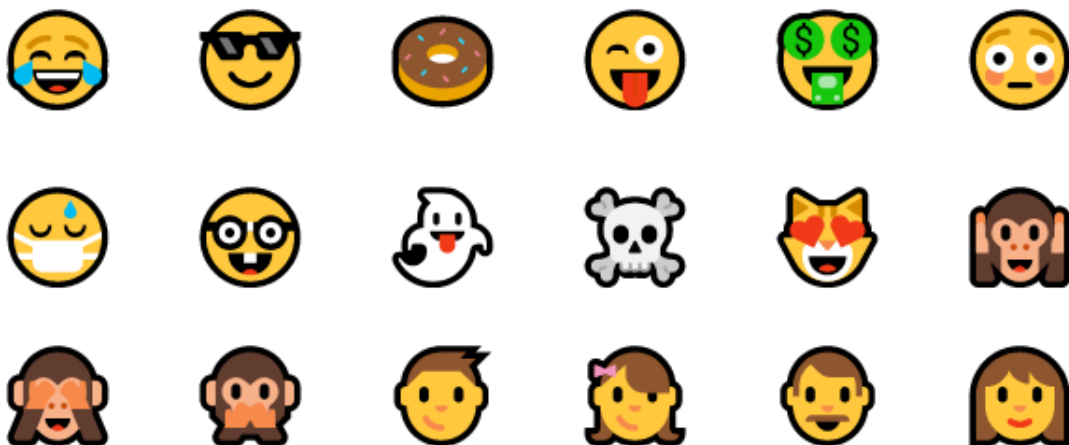
Pod ↑	↑ Meshed	↑ Success Rate	↑ RPS	↑ P50 Latency	↑ P95 Latency	↑ P99 Latency	Grafana
-------	----------	----------------	-------	---------------	---------------	---------------	---------

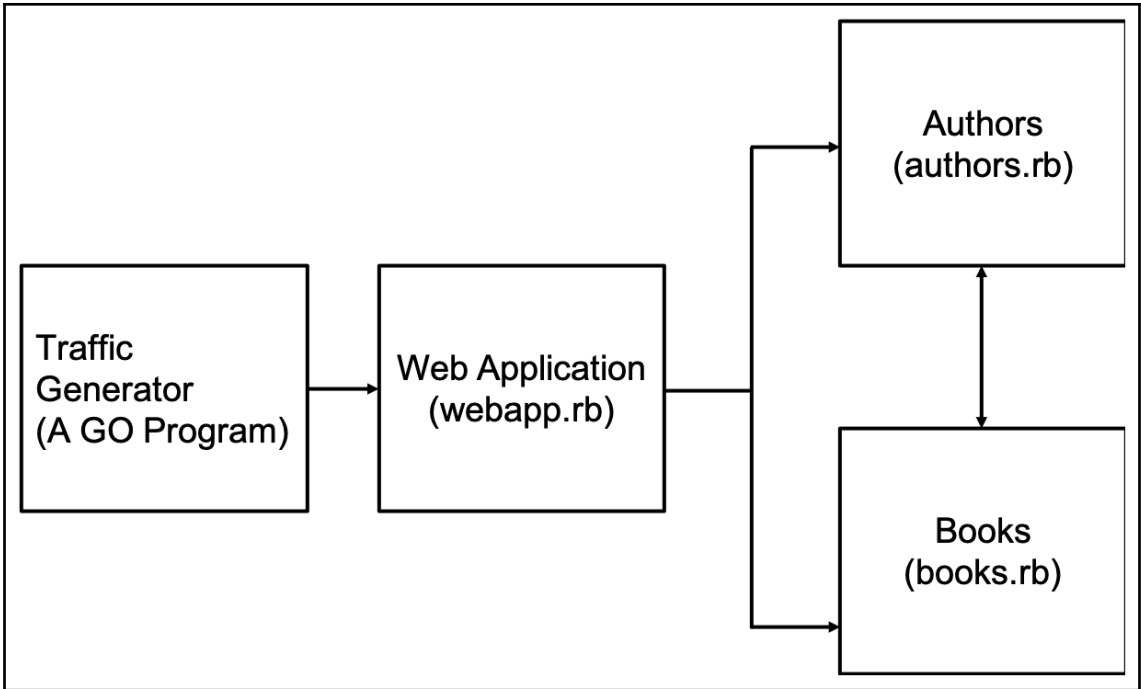


EMOJI VOTE

Tap to vote for your favorite emoji below

View the leaderboard





Linkerd Buoyant Books App

Not secure | webapp.linkerd-lab.svc.cluster.local:7000

Buoyant Books App

Books (15)

Title	Author	Pages		
1Q84	Haruki Murakami	1184		
American Gods	Neil Gaiman	588		
Children of Men	P.D. James	241		
Cloud Atlas	David Mitchell	529		
Dear Life	Alice Munro	319		
Dispossessed, The	Ursula K. Le Guin	401		
Fifth Season, The	N.K. Jemisin	512		
Fire Next Time, The	James Baldwin	141		
Giovanni's Room	James Baldwin	176		
Kafka on the Shore	Haruki Murakami	436		
Left Hand of Darkness, The	Ursula K. Le Guin	304		

Authors (11)

Last Name	First Name	Book Count		
Atwood	Margaret	0		
Baldwin	James	2		
Chabon	Michael	2		
Cline	Ernest	0		
Gaiman	Neil	1		
James	P.D.	1		
Jemisin	N.K.	3		
K. Le Guin	Ursula	2		
Mitchell	David	1		
Munro	Alice	1		
Murakami	Haruki	2		

Add an Author

Books (15)

Title	Author	Pages		
1Q84	Haruki Murakami	1184		
American Gods	Neil Gaiman	588		
Children of Men	P.D. James	241		
Cloud Atlas	David Mitchell	529		
Dear Life	Alice Munro	319		
Dispossessed, The	Ursula K. Le Guin	401		
Fifth Season, The	N.K. Jemisin	512		
Fire Next Time, The	James Baldwin	141		
Giovanni's Room	James Baldwin	176		
Kafka on the Shore	Haruki Murakami	436		
Left Hand of Darkness, The	Ursula K. Le Guin	304		
Mysteries of Pittsburgh, The	Michael Chabon	306		
Obelisk Gate, The	N.K. Jemisin	448		
Stone Sky, The	N.K. Jemisin	464		
Telegraph Avenue	Michael Chabon	468		

Add a Book

Title

Author

Page count

Authors (11)

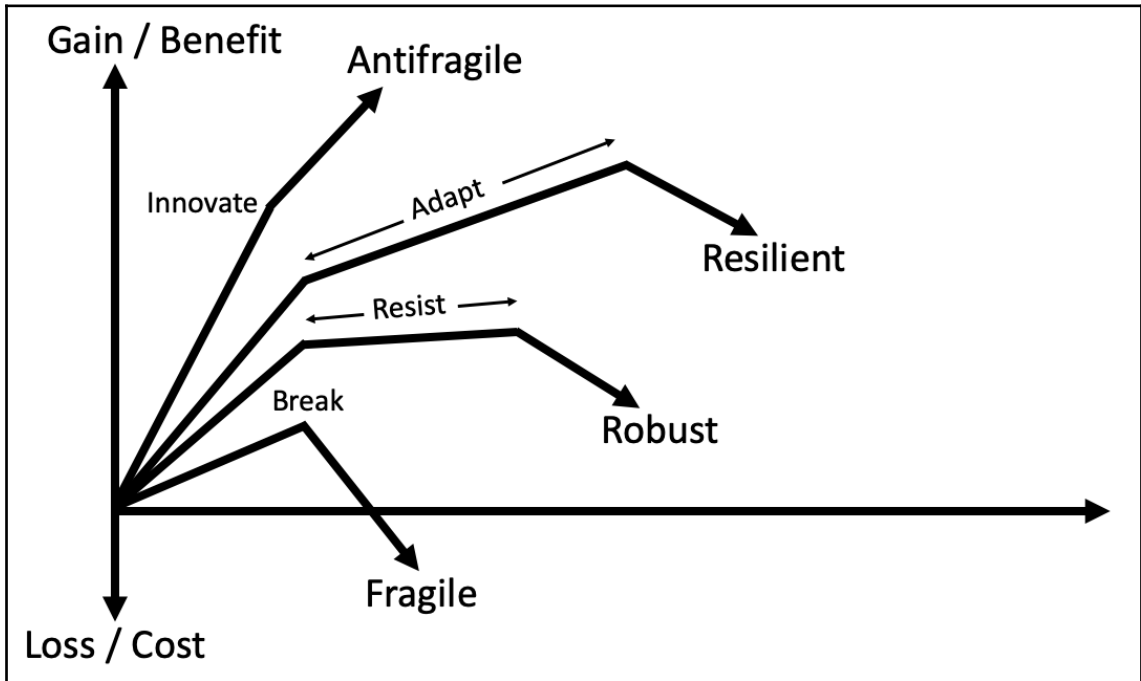
Last Name	First Name	Book Count		
Atwood	Margaret	0		
Baldwin	James	2		
Chabon	Michael	2		
Cline	Ernest	0		
Gaiman	Neil	1		
James	P.D.	1		
Jemisin	N.K.	3		
K. Le Guin	Ursula	2		
Mitchell	David	1		
Munro	Alice	1		
Murakami	Haruki	2		

Add an Author

First name

Last name

Chapter 16: Exploring the Reliability Features of Linkerd

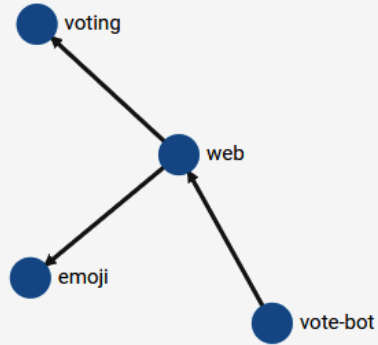


HTTP metrics								emojivoto	✕
Namespace ↑	Pod ↑	↑ Meshed	↑ Success Rate	↑ RPS	↑ P50 Latency	↑ P95 Latency	↑ P99 Latency	Grafana	
emojivoto	emoji-6988d8b456-4p8t2	1/1	100.00% ●	2	1 ms	1 ms	1 ms		
emojivoto	vote-bot-5cb9dc99db-kfnhs	1/1	—	—	—	—	—		
emojivoto	voting-54944fb8f8-fxgp5	1/1	83.33% ●	0.4	1 ms	1 ms	1 ms		
emojivoto	voting-54944fb8f8-vj6xx	1/1	81.58% ●	0.63	1 ms	1 ms	1 ms		
emojivoto	web-58bd8f8c44-skhww	1/1	92.63% ●	1.58	3 ms	6 ms	9 ms		
emojivoto	web-58bd8f8c44-w7xpn	1/1	84.62% ●	0.43	3 ms	5 ms	5 ms		

TCP metrics							emojivoto	✕
Namespace ↑	Pod ↑	↑ Meshed	↑ Connections	↑ Read Bytes / sec	↑ Write Bytes / sec	Grafana		
emojivoto	emoji-6988d8b456-4p8t2	1/1	4	2.424kB/s	2.427kB/s			
emojivoto	vote-bot-5cb9dc99db-kfnhs	1/1	—	—	—			
emojivoto	voting-54944fb8f8-fxgp5	1/1	3	50.13B/s	54.72B/s			
emojivoto	voting-54944fb8f8-vj6xx	1/1	3	78.63B/s	86.13B/s			
emojivoto	web-58bd8f8c44-skhww	1/1	2	3.853kB/s	3.957kB/s			
emojivoto	web-58bd8f8c44-w7xpn	1/1	2	969.48B/s	997.22B/s			

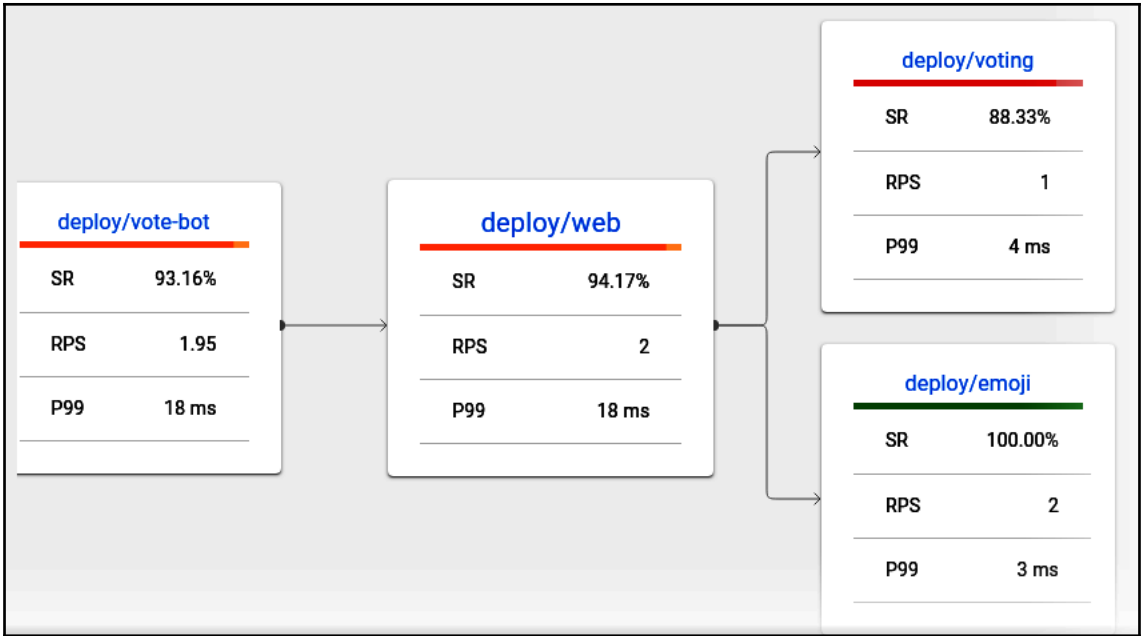
HTTP metrics							
Namespace 	 Meshed	 Success Rate	 RPS	 P50 Latency	 P95 Latency	 P99 Latency	Grafana
cert-manager	0/1	—	—	—	—	—	
default	0/0	—	—	—	—	—	
emojivoto	6/6	94.61% 	4.95	1 ms	5 ms	9 ms	
istio-lab	0/6	—	—	—	—	—	
istio-system	0/12	—	—	—	—	—	
keepalived	0/2	—	—	—	—	—	
kube-public	0/0	—	—	—	—	—	
kube-system	0/37	—	—	—	—	—	
linkerd	7/7	100.00% 	6.9	5 ms	87 ms	97 ms	
linkerd-lab	6/6	76.22% 	23.13	10 ms	83 ms	99 ms	
platform	0/0	—	—	—	—	—	
services	0/0	—	—	—	—	—	
test-lab	1/1	—	—	—	—	—	

Namespace > emojivoto

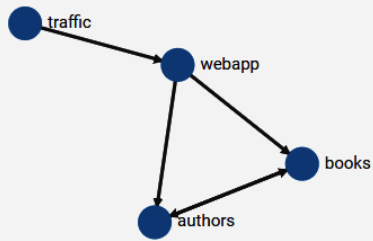


Deployments

Deployment ↑	↑ Meshed	↑ Success Rate	↑ RPS	↑ P50 Latency	↑ P95 Latency	↑ P99 Latency	Grafana
emoji	1/1	100.00% ●	1.97	1 ms	1 ms	1 ms	⚙️
vote-bot	1/1	--	--	--	--	--	⚙️
voting	2/2	91.67% ●	1	1 ms	1 ms	1 ms	⚙️
web	2/2	95.58% ●	1.88	3 ms	8 ms	10 ms	⚙️

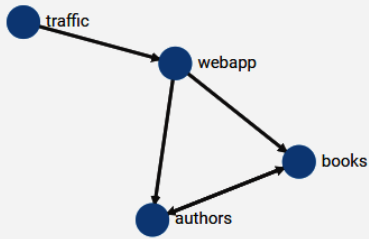


LIVE CALLS		ROUTE METRICS							
Name	Method ↑	Path ↑	↓ Count	↑ Best	↓ Worst	↑ Last	↑ Success Rate	Tap	
FROM deploy/vote-bot	GET	/api/list	178	3 ms	16 ms	6 ms	100.00% ●	b	
TO deploy/emoji	POST	/emojivoto.v1.EmojiService/ListAll	170	1 ms	9 ms	3 ms	100.00% ●	b	
FROM deploy/vote-bot	GET	/api/vote	169	5 ms	33 ms	18 ms	78.70% ●	b	
TO deploy/emoji	POST	/emojivoto.v1.EmojiService/FindByShortcode	168	1 ms	16 ms	9 ms	100.00% ●	b	
TO deploy/voting	POST	/emojivoto.v1.VotingService/VoteDoughnut	36	1 ms	5 ms	2 ms	0.00% ● →	b	
TO deploy/voting	POST	/emojivoto.v1.VotingService/VoteOkWoman	6	2 ms	4 ms	2 ms	100.00% ●	b	
TO deploy/voting	POST	/emojivoto.v1.VotingService/VoteBeer	4	2 ms	4 ms	2 ms	100.00% ●	b	
TO deploy/voting	POST	/emojivoto.v1.VotingService/VoteGolfingMan	4	2 ms	3 ms	2 ms	100.00% ●	b	
TO deploy/voting	POST	/emojivoto.v1.VotingService/VoteCloudWithRain	3	2 ms	4 ms	2 ms	100.00% ●	b	
TO deploy/voting	POST	/emojivoto.v1.VotingService/VoteMoneyMouthFace	2	2 ms	3 ms	3 ms	100.00% ●	b	



Deployments

Deployment ↑	↑ Meshed	↑ Success Rate	↑ RPS	↑ P50 Latency	↑ P95 Latency	↑ P99 Latency	Grafana
authors	1/1	75.76% ●	5.5	8 ms	41 ms	143 ms	⚙️
books	1/1	80.38% ●	6.97	15 ms	118 ms	231 ms	⚙️
traffic	1/1	—	—	—	—	—	⚙️
webapp	3/3	78.98% ●	6.18	35 ms	193 ms	277 ms	⚙️



Deployments

Deployment ↑	↑ Meshed	↑ Success Rate	↑ RPS	↑ P50 Latency	↑ P95 Latency	↑ P99 Latency	Grafana
authors	1/1	75.76% ●	5.5	8 ms	41 ms	143 ms	⚙️
books	1/1	80.38% ●	6.97	15 ms	118 ms	231 ms	⚙️
traffic	1/1	--	--	--	--	--	⚙️
webapp	3/3	78.98% ●	6.18	35 ms	193 ms	277 ms	⚙️

Mysteries of Pittsburgh, The	Michael Chabon	306		
Obelisk Gate, The	N.K. Jemisin	448		
Ready Player One	Ernest Cline	345		
Ready Player Two	Ernest Cline	456		
Stone Sky, The	N.K. Jemisin	464		
Telegraph Avenue	Michael Chabon	468		

Add an Author

First name

Last name

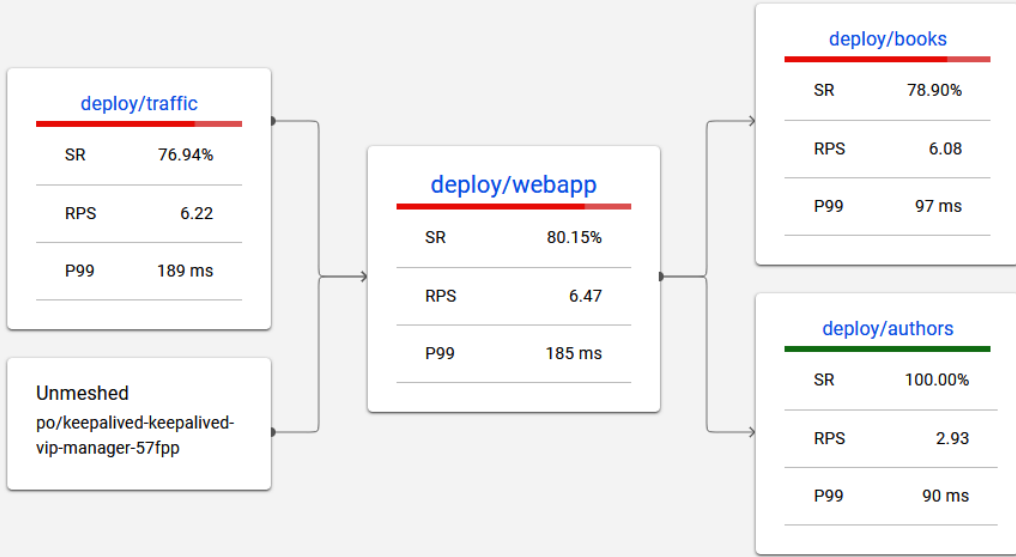
Add a Book

Title ←

Author ▼

Page count ←

deployment/webapp



	Name	Method ↑	Path ↑	↓ Count	↑ Best	↓ Worst	↑ Last	↑ Success Rate	Tap
FROM	deploy/traffic	POST	/books	529	18 ms	356 ms	90 ms	50.66% ●	b
TO	deploy/books	POST	/books.json	511	11 ms	127 ms	43 ms	50.88% ●	b
TO	deploy/books	GET	/books.json	263	6 ms	107 ms	8 ms	100.00% ●	b
FROM	deploy/traffic	POST	/authors	134	16 ms	144 ms	19 ms	100.00% ●	b
FROM	deploy/traffic	GET	/	134	27 ms	279 ms	31 ms	100.00% ●	b

Tap

Namespace

linkerd-lab

Resource

deployment/webapp

STOP

RESET

Current Tap query

```
linkerd tap deployment/webapp --namespace linkerd-lab --to deployment/books --to-namespace linkerd-lab --path /books.json
```

Show more filters

	Direction	Name	Method	Path	Latency	HTTP status	GRPC status
▼	TO	deploy/books	POST	/books.json	26 ms	201	--
▼	TO	deploy/books	POST	/books.json	23 ms	201	--
▼	TO	deploy/books	POST	/books.json	25 ms	500	--
▼	TO	deploy/books	POST	/books.json	14 ms	500	--
▼	TO	deploy/books	POST	/books.json	12 ms	500	--
▼	TO	deploy/books	POST	/books.json	12 ms	500	--
▼	TO	deploy/books	POST	/books.json	16 ms	500	--

Chapter 18: Exploring the Observability Features of Linkerd

Destination	Method	Path	Count	Best	Worst	Last	Success Rate
emoji-6988d8b456-4p8t2	POST	/emojivoto.v1.EmojiService/ListAll	206	651µs	38ms	798µs	100.00%
emoji-6988d8b456-4p8t2	POST	/emojivoto.v1.EmojiService/FindByshortcode	193	630µs	37ms	2ms	100.00%
web-58bd8f8c44-wxpn	GET	/api/list	134	4ms	58ms	4ms	100.00%
web-58bd8f8c44-wxpn	GET	/api/vote	126	6ms	44ms	9ms	89.68%
web-58bd8f8c44-skhvw	GET	/api/list	72	4ms	58ms	5ms	100.00%
web-58bd8f8c44-skhvw	GET	/api/vote	65	6ms	88ms	15ms	87.69%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteDoughnut	14	679µs	5ms	991µs	0.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VotePrincess	8	829µs	2ms	2ms	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteDoughnut	7	890µs	14ms	14ms	0.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VotePoliceman	5	842µs	10ms	2ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteFlightDeparture	4	829µs	5ms	5ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteDog	4	1ms	4ms	2ms	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteConstructionWorkerMan	4	2ms	6ms	6ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteJackOLantern	4	784µs	3ms	2ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteChampagne	4	906µs	7ms	2ms	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteMan	4	1ms	5ms	1ms	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteCloudwithRain	4	883µs	3ms	2ms	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteJackOLantern	4	1ms	11ms	2ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteGirl	4	882µs	3ms	882µs	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteConstructionWorkerMan	4	996µs	6ms	2ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteMan	4	697µs	2ms	2ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteWoman	3	2ms	3ms	2ms	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteTaco	2	1ms	2ms	2ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteHeartEyesCat	2	933µs	2ms	2ms	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteClap	2	823µs	2ms	823µs	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteBurrito	2	4ms	5ms	5ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteVulcanSalute	2	934µs	2ms	2ms	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteRamen	2	910µs	2ms	910µs	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteRocket	2	1ms	3ms	3ms	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteMask	2	930µs	3ms	930µs	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteCrystalBall	2	914µs	2ms	2ms	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteCamping	2	924µs	2ms	2ms	100.00%
voting-54944fb8f8-fxgp5	POST	/emojivoto.v1.VotingService/VoteDancer	2	1ms	4ms	4ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteBurrito	2	6ms	8ms	8ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteRainbow	2	1ms	5ms	1ms	100.00%
voting-54944fb8f8-vj6xx	POST	/emojivoto.v1.VotingService/VoteInterrobang	2	915µs	2ms	2ms	100.00%

Targets

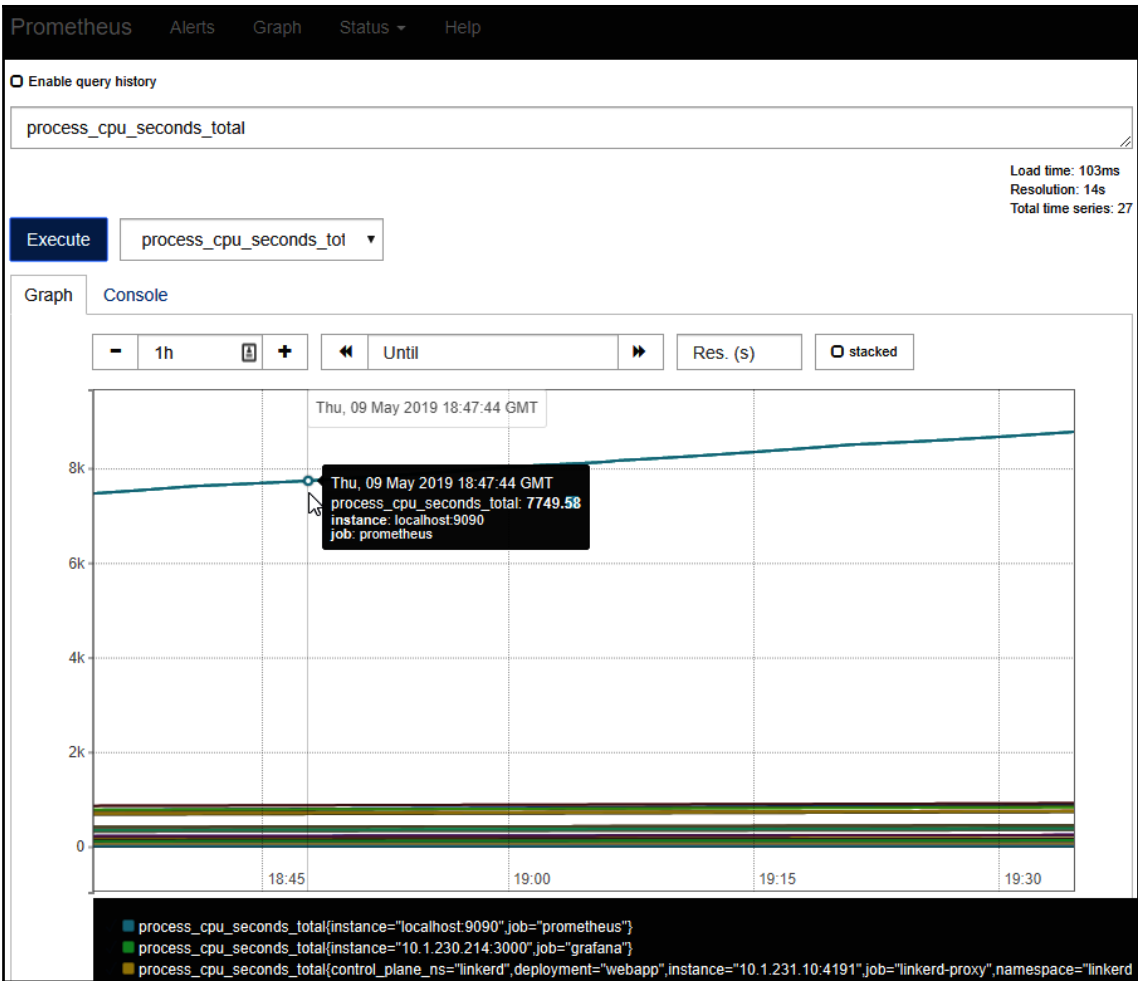
All Unhealthy

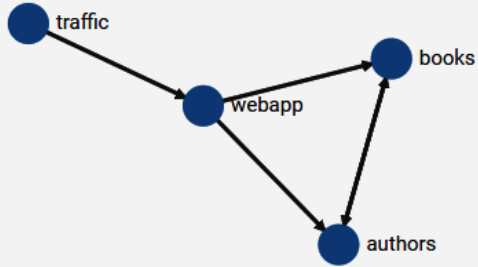
grafana (1/1 up) [show less](#)

Endpoint	State	Labels	Last Scrape
http://10.1.230.214:3000/metrics	UP	instance="10.1.230.214:3000" job="grafana"	4.763s ago

linkerd-controller (6/6 up) [show less](#)

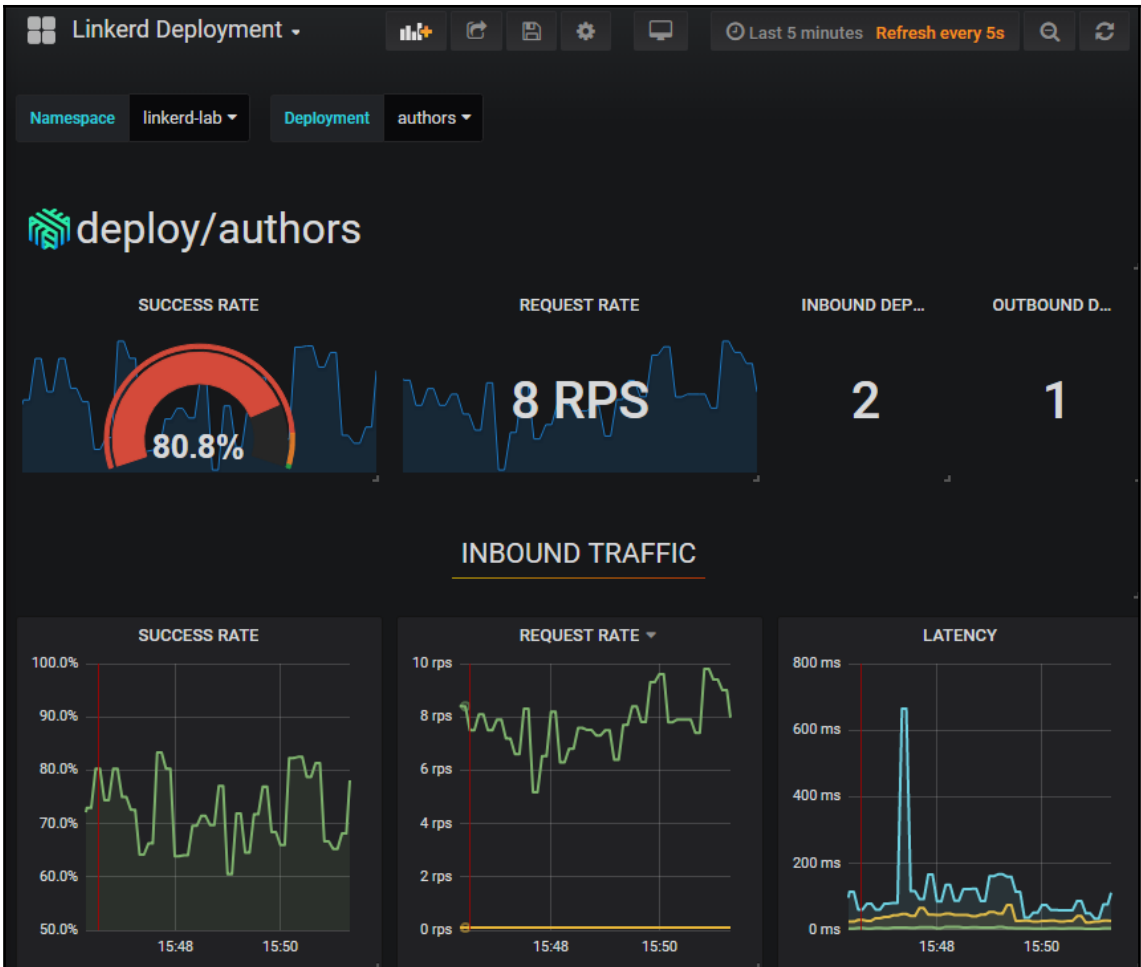
Endpoint	State	Labels	Last Scrape
http://10.1.230.231:9994/metrics	UP	component="web" instance="10.1.230.231:9994" job="linkerd-controller"	7.499s ago
http://10.1.230.235:9090/metrics	UP	component="prometheus" instance="10.1.230.235:9090" job="linkerd-controller"	3.001s ago
http://10.1.230.249:9995/metrics	UP	component="public-api" instance="10.1.230.249:9995" job="linkerd-controller"	1.727s ago
http://10.1.230.249:9996/metrics	UP	component="destination" instance="10.1.230.249:9996" job="linkerd-controller"	4.424s ago
http://10.1.230.249:9998/metrics	UP	component="tap" instance="10.1.230.249:9998" job="linkerd-controller"	3.003s ago
http://10.1.230.250:9990/metrics	UP	component="identity" instance="10.1.230.250:9990" job="linkerd-controller"	1.183s ago



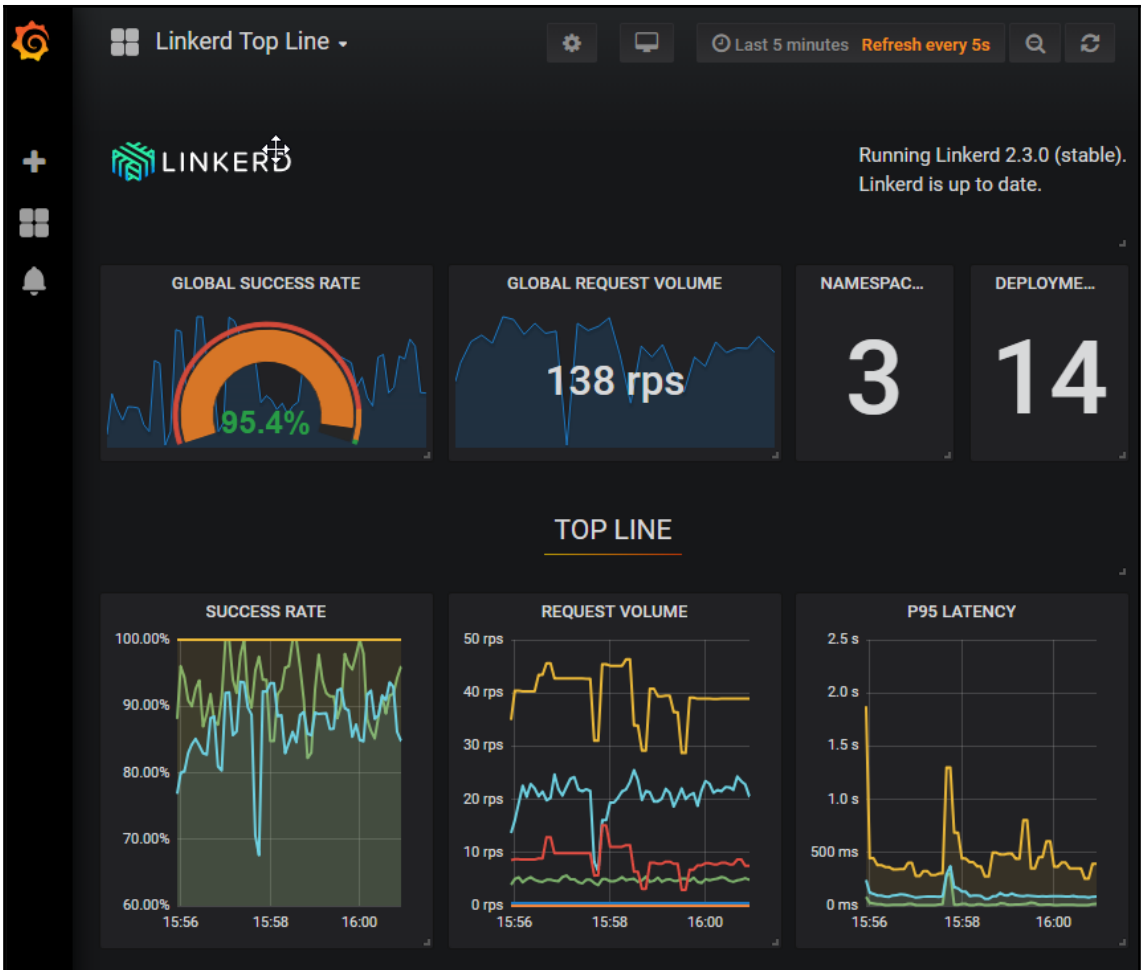



Deployments

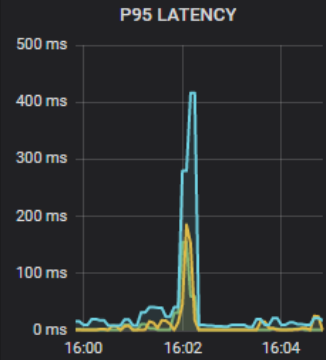
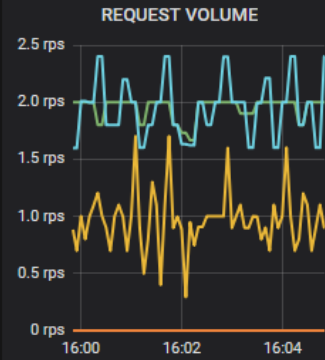
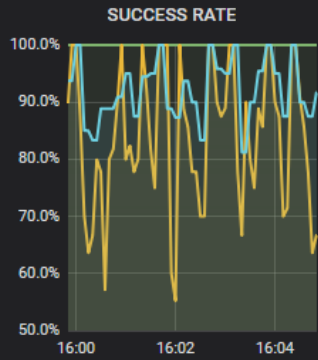
Deployment ↑	↑ Meshed	↑ Success Rate	↑ RPS	↑ P50 Latency	↑ P95 Latency	↑ P99 Latency	Grafana
authors	1/1	76.41% ●	7.98	6 ms	40 ms	80 ms	⚙️
books	1/1	96.52% ●	7.67	9 ms	83 ms	124 ms	⚙️
traffic	1/1	--	--	--	--	--	⚙️
webapp	3/3	96.33% ●	6.35	34 ms	121 ms	184 ms	⚙️



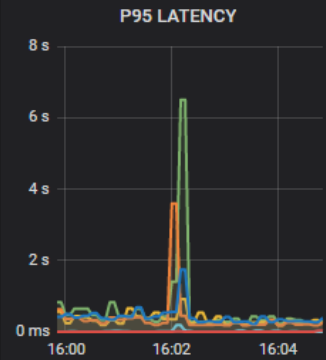
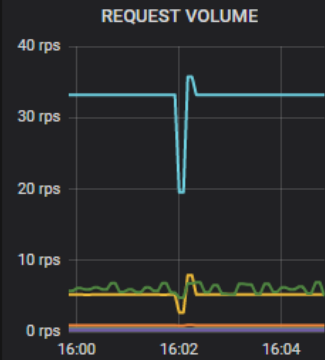
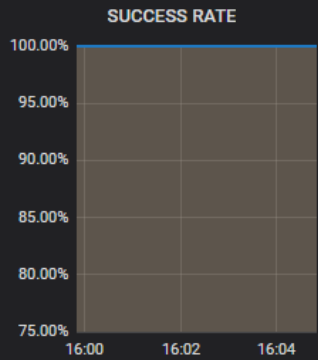


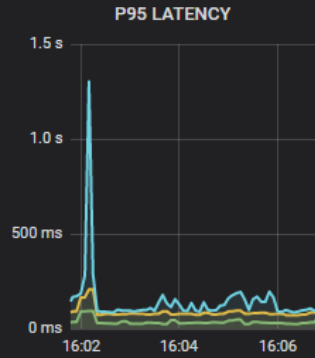
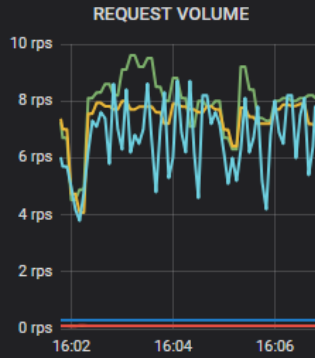
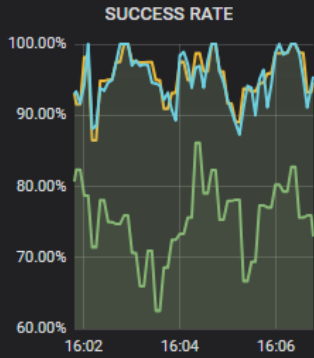


 ns/emojivoto

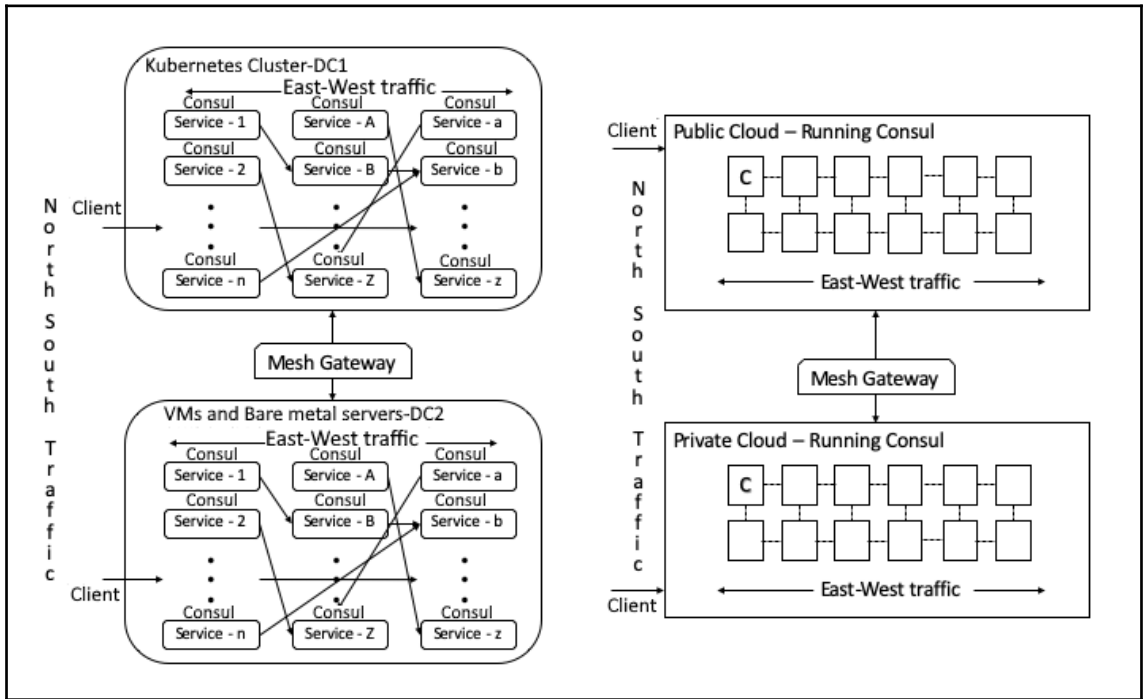


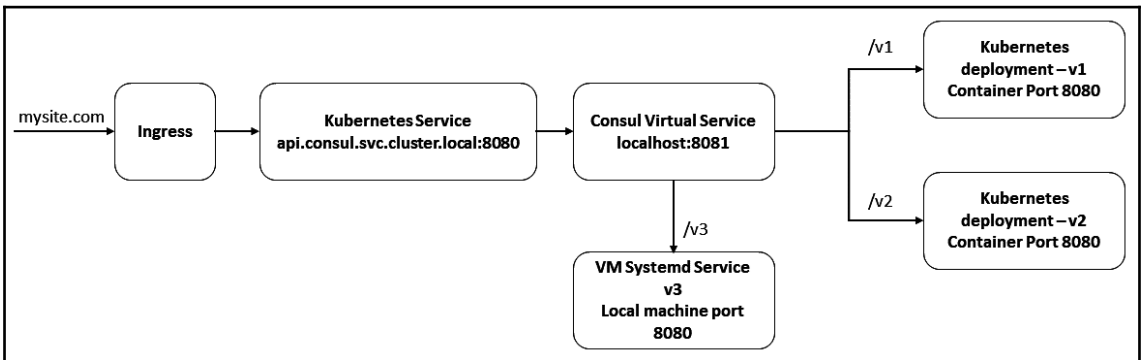
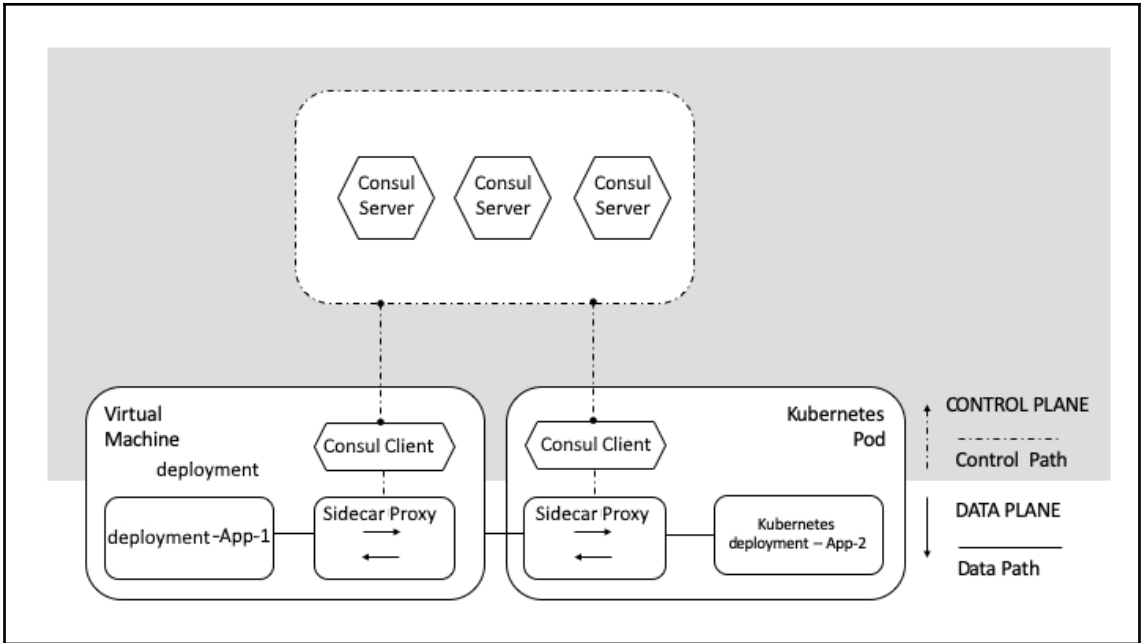
 ns/linkerd

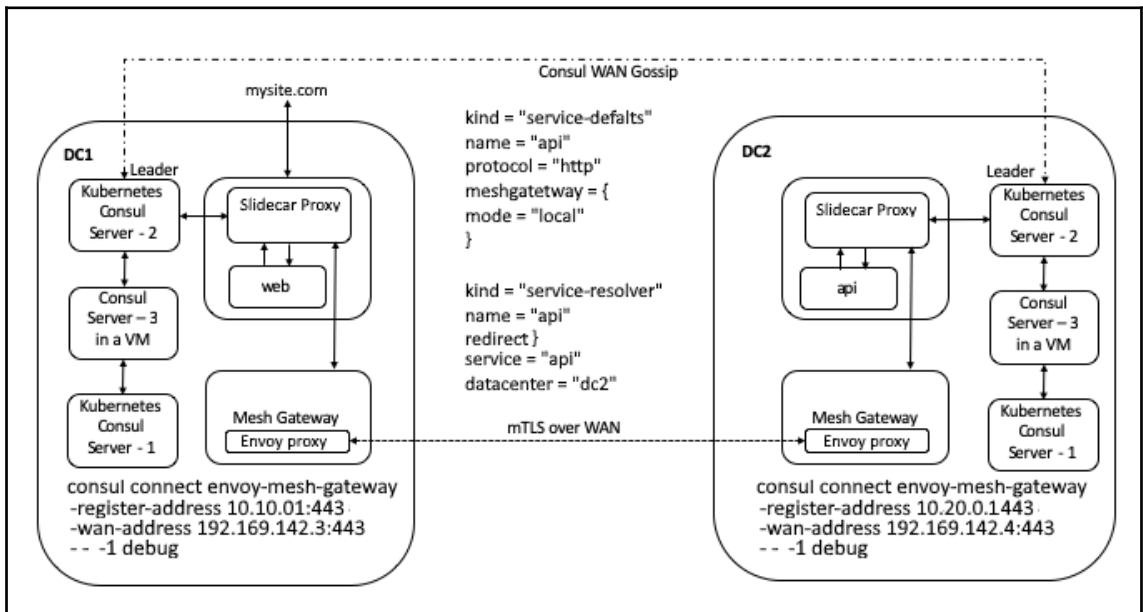
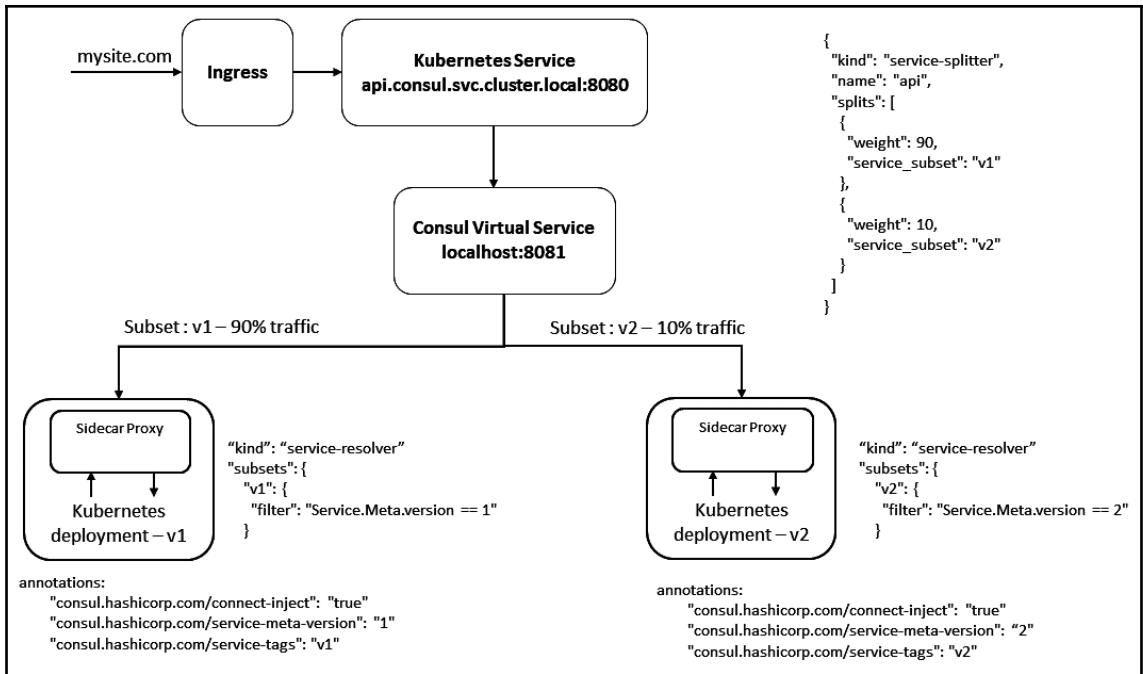




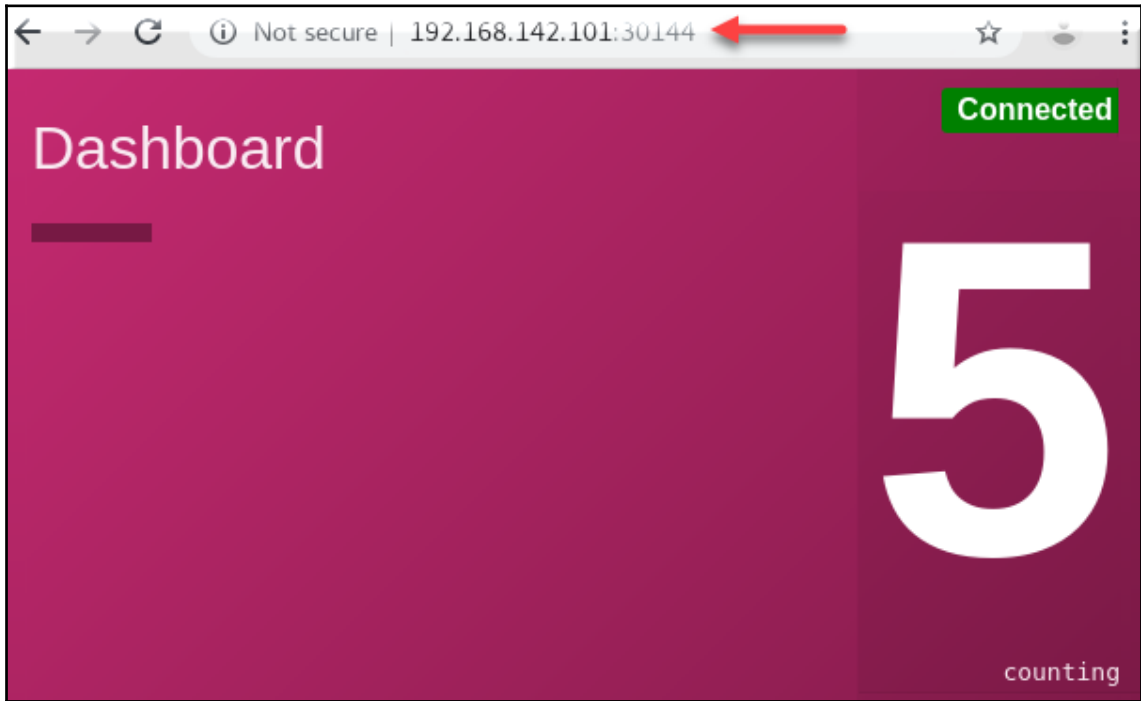
Chapter 19: Understanding the Consul Service Mesh







Chapter 21: Exploring the Service Discovery Features of Consul



← → ↻ ⓘ Not secure | webconsole.consul.local/ui/dc1/services ☆

dc1 **Services** Nodes Key/Value ACL Intentions Documentation Settings

Services 5 total

service:name tag:name status:critical search-term

Service	Health Checks ⓘ	Tags
consul ←	✓ 3	
counting	✓ 3	v0.0.4
counting-sidecar-proxy	✓ 3	
dashboard	✓ 3	v0.0.2
dashboard-sidecar-proxy	✓ 3	

consul

Instances Tags

Search 🔍

ID	Node	Address	Node Checks	Service Checks
consul	consul-server-0	:8300	✓ 1	
consul	consul-server-1	:8300	✓ 1	
consul	consul-server-2	:8300	✓ 1	

dc1 Services **Nodes** Key/Value ACL Intentions Documentation Settings

Nodes 4 total

Search by name

All (Any Status) Critical Checks Warning Checks Passing Checks

Healthy Nodes

consul-server-0 192.168.230.204	✓	consul-server-1 192.168.230.215	✓	consul-server-2 192.168.230.226	✓
osc01.servicemesh.local 192.168.230.227	✓				

osc01.servicemesh.local [192.168.230.227](#)

Health Checks Services Round Trip Time Lock Sessions

✓ Serf Health Status [Copy Output](#)

Output

```
Agent alive and reachable
```

✓ Service 'counting' check [Copy Output](#)

Output

```
HTTP GET http://192.168.230.223:9001/health: 200 OK Output: Hello, you've hit /health
```

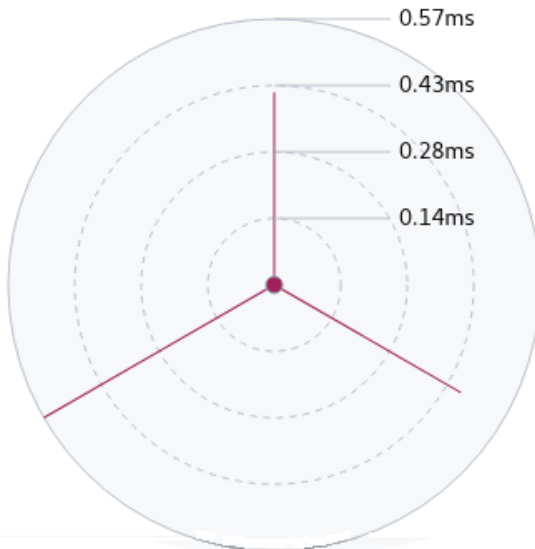
[← All Nodes](#)

osc01.servicemesh.local

[192.168.230.227](#)

Health Checks Services **Round Trip Time** Lock Sessions

Minimum	0.42ms
Median	0.47ms
Maximum	0.57ms



dc1

Services

Nodes

Key/Value

ACL

Intentions

Documentation

Settings

Intentions 0 total

Create

There are no intentions

New Intention

Source Service

Choose a Consul Service, write in a future Consul Service, or write any Service URL

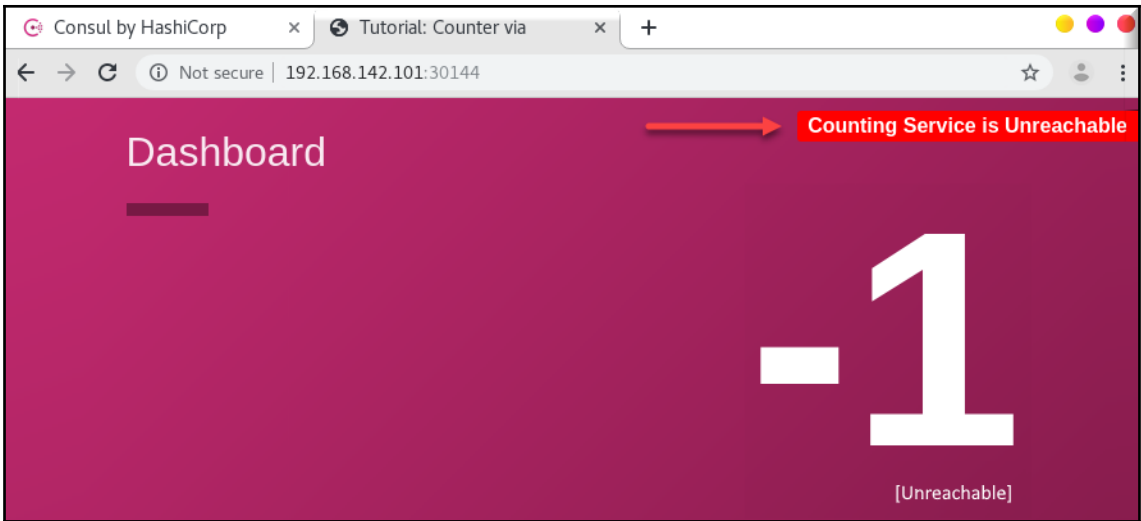
Destination Service

Choose a Consul Service, write in a future Consul Service, or write any Service URL

Allow Deny


Description

Choose a Consul Service, write in a future Consul Service, or write any Service URL




New Intention

Source Service

dashboard 

Choose a Consul Service, write in a future Consul Service, or write any Service URL

Destination Service

counting 

Choose a Consul Service, write in a future Consul Service, or write any Service URL

Allow Deny

Description

Description

Choose a Consul Service, write in a future Consul Service, or write any Service URL


Save

Cancel

Dashboard

Connected

1,062

counting

Services 6 total

service:name tag:name status:critical search-term

Service	Health Checks ⓘ	Tags
consul	✓ 3	
counting	✓ 3	v0.0.4
counting-sidecar-proxy	✓ 3	
dashboard	✓ 3	v0.0.2
dashboard-sidecar-proxy	✓ 3	
external-counting ←	✓ 2	v0.0.4

[← All Services](#) [← Service \(external-counting\)](#) [← Instance](#)

external-counting

Service Name
external-counting

Node Name
osc01.servicemesh.local

Service Checks Node Checks Tags Meta Data



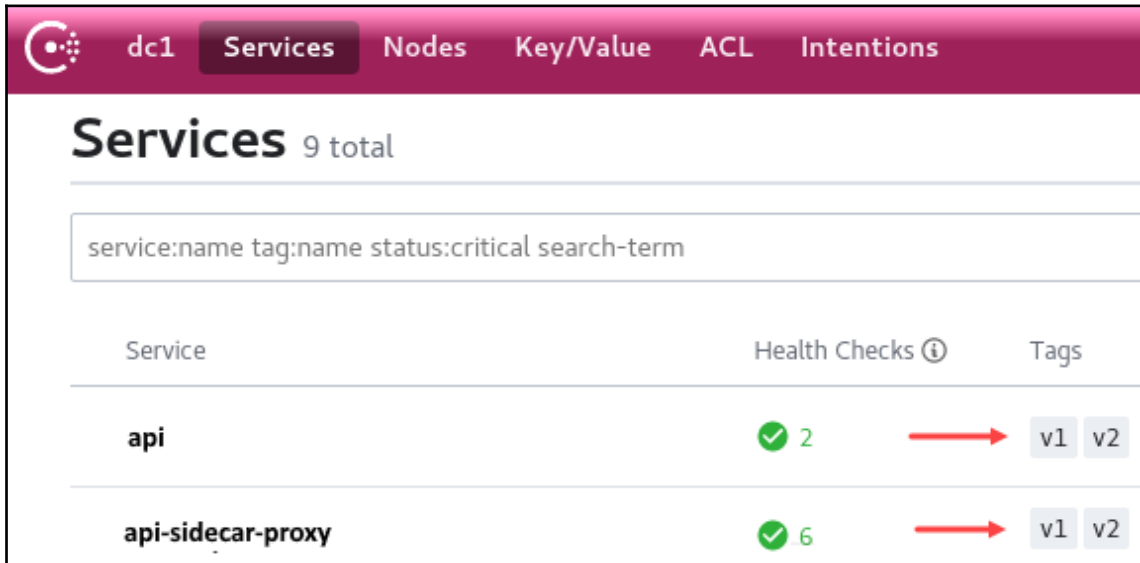
Service 'external-counting' check

 [Copy Output](#)

Output

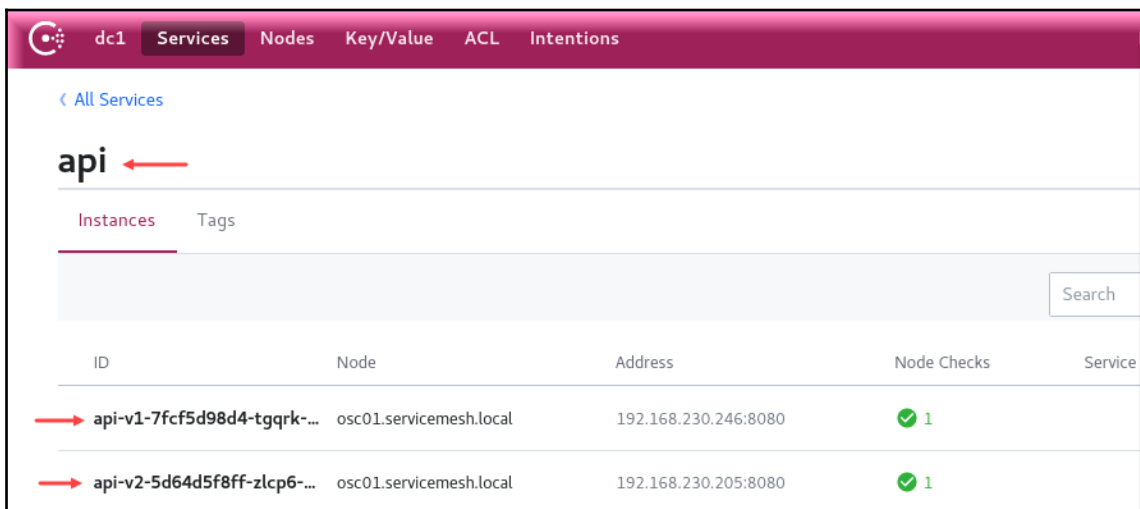
```
HTTP GET http://192.168.142.101:10001/health: 200 OK Output: Hello, you've hit /health
```

Chapter 22: Exploring Traffic Management in Consul



The screenshot shows the Consul web interface for the 'dc1' datacenter, specifically the 'Services' tab. The page title is 'Services 9 total'. A search bar contains the text 'service:name tag:name status:critical search-term'. Below the search bar is a table with columns for 'Service', 'Health Checks', and 'Tags'. Two services are listed: 'api' and 'api-sidecar-proxy'. The 'api' service has 2 health checks and a red arrow pointing right, with tags 'v1' and 'v2'. The 'api-sidecar-proxy' service has 6 health checks and a red arrow pointing right, with tags 'v1' and 'v2'.

Service	Health Checks	Tags
api	2	v1 v2
api-sidecar-proxy	6	v1 v2



The screenshot shows the Consul web interface for the 'dc1' datacenter, specifically the 'Services' tab, but it is zoomed in on the details for the 'api' service. The page title is 'api'. There are tabs for 'Instances' and 'Tags'. Below the tabs is a search bar with the text 'Search'. Below the search bar is a table with columns for 'ID', 'Node', 'Address', 'Node Checks', and 'Service'. Two instances are listed: 'api-v1-7fcf5d98d4-tgqrk-...' and 'api-v2-5d64d5f8ff-zlcp6-...'. Both instances are on the node 'osc01.servicemesh.local' and have 1 node check each, both with green checkmarks.

ID	Node	Address	Node Checks	Service
api-v1-7fcf5d98d4-tgqrk-...	osc01.servicemesh.local	192.168.230.246:8080	1	api
api-v2-5d64d5f8ff-zlcp6-...	osc01.servicemesh.local	192.168.230.205:8080	1	api

dc1 **Services** Nodes Key/Value ACL Intentions

< All Services

web-sidecar-proxy Proxy

Instances Tags

Search

ID	Node	Address	Node Checks	Service Checks
web-86459c6966-qh5bq...	osc01.servicemesh.local	192.168.230.230:20000	✓ 1	✓ 2

dc1 **Services** Nodes Key/Value ACL Intentions

< All Services < Service (web-sidecar-proxy) < Instance

web-deployment-7dc47f6678-fcnzv-web-sidecar-proxy Proxy

Service Name	Node Name	Dest. Service Instance	Local Service Address
web-sidecar-proxy	osc01.servicemesh.local	web	127.0.0.1:8080

Service Checks Node Checks **Upstreams** Tags Meta Data

✓ **Proxy Public Listener**

ServiceName	CheckID	Notes
web-sidecar-proxy	service:web-deployment-7dc47f6678-fcnzv-web-sidecar-proxy:1	-

dc1 Services Nodes Key/Value ACL Intentions

< All Services < Service (web-sidecar-proxy) < Instance

web-deployment-7dc47f6678-fcnzv-web-sidecar-proxy Proxy

Service Name	Node Name	Dest. Service Instance	Local Service Address
web-sidecar-proxy	osc01.servicemesh.local	web	127.0.0.1:8080

Service Checks Node Checks **Upstreams** Tags Meta Data

Upstream	Datacenter	Type	Local Bind Address
api ←		service	→ :8081