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# Service Mesh with Istio

# **Sevi Karakose**

Instructor



# Course Format



Course Video GIF



LAB GIF

# Objectives

Monoliths &  
Microservices

Service  
Mesh

Istio

Install  
Istio

Visualizing  
with  
Kiali

# Objectives

Gateways

Virtual Services

Destination Rules

Subsets

Timeouts

Retries

Circuit Breaking

Fault Injection

Request Routing

A/B Testing

# Objectives



# Objectives

Viewing and  
Collecting  
Metrics

Kiali In  
Detail

Distributed  
Tracing



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# PRE-REQUISITES



# Pre-Requisites



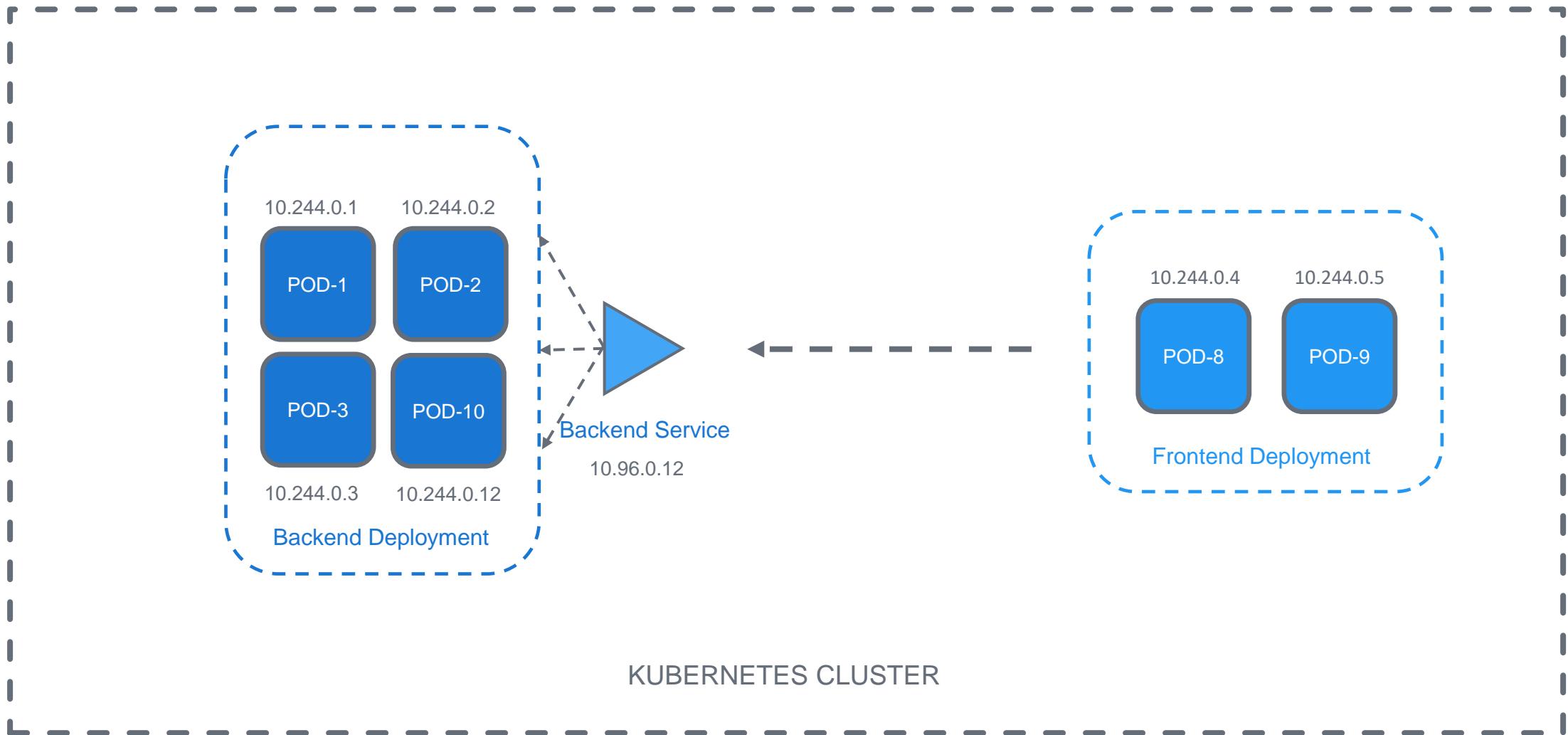


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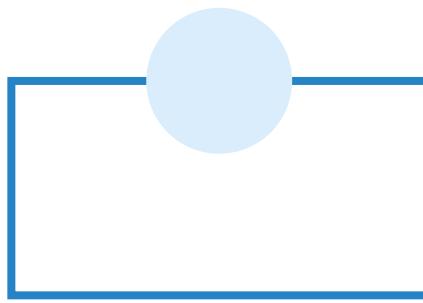
# KUBERNETES SERVICES



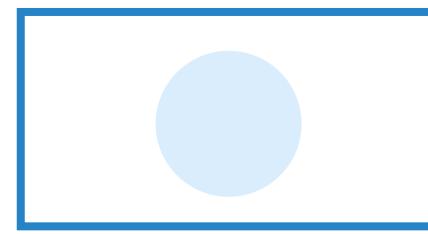
# Kubernetes Services



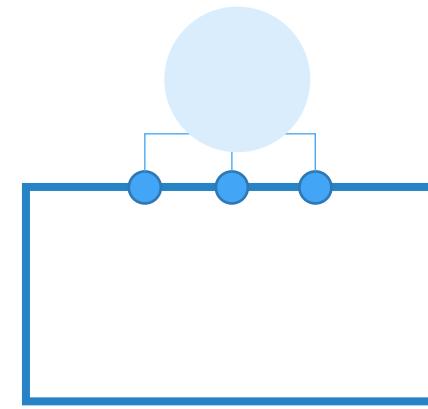
# Kubernetes Services



NodePort



ClusterIP



LoadBalancer

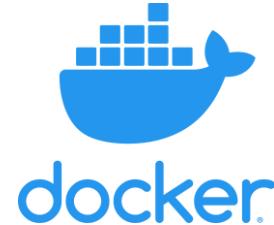
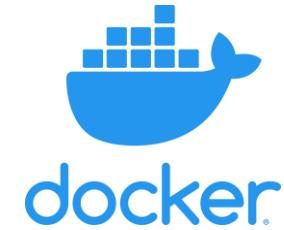


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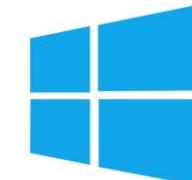
# KUBERNETES ON YOUR LOCAL MACHINES



# Two Popular Kubernetes Tools



Hyperkit



Microsoft  
Hyper-V



podman

# How to Install Minikube

The screenshot shows a web browser displaying the official Minikube documentation at [minikube.sigs.k8s.io/docs/start/](https://minikube.sigs.k8s.io/docs/start/). The page title is "minikube start". The main content area is titled "What you'll need" and lists requirements: 2 CPUs or more, 2GB of free memory, 20GB of free disk space, Internet connection, and a Container or virtual machine manager like Docker, Hyperkit, Hyper-V, KVM, Parallels, Podman, VirtualBox, or VMWare. Below this is the "1 Installation" section, which asks users to select their target platform (Operating system: Linux, macOS, Windows; Architecture: x86-64, ARM64; Installer type: Binary download, Homebrew). It provides a command-line example for macOS:

```
curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-darwin-amd64  
sudo install minikube-darwin-amd64 /usr/local/bin/minikube
```

The "2 Start your cluster" section instructs users to run "minikube start" from a terminal with administrator access.

# Setting up Kubernetes Cluster with MiniKube

```
>_
$ minikube start
🕒 minikube v1.16.0 on Darwin 10.15.5
🆕 minikube 1.19.0 is available! Download it:
https://github.com/kubernetes/minikube/releases/tag/v1.19.0
💡 To disable this notice, run: 'minikube config set WantUpdateNotification false'

⭐ Automatically selected the docker driver
👍 Starting control plane node minikube in cluster minikube
🚜 Pulling base image ...
⌚ Creating docker container (CPUs=2, Memory=4000MB) ...
⚠ This container is having trouble accessing https://k8s.gcr.io
💡 To pull new external images, you may need to configure a proxy:
https://minikube.sigs.k8s.io/docs/reference/networking/proxy/
🌐 Preparing Kubernetes v1.20.0 on Docker 20.10.0 ...
  ▪ Generating certificates and keys ...
  ▪ Booting up control plane ...
  ▪ Configuring RBAC rules ...
🔍 Verifying Kubernetes components...
🛠 Enabled addons: storage-provisioner, default-storageclass
🌐 Done! kubectl is now configured to use "minikube" cluster and "default" namespace
by default
```

# Setting up Kubernetes Cluster with MiniKube

```
>_
```

```
$ minikube addons enable ingress
```

```
Exiting due to MK_USAGE: Due to networking limitations of driver docker on darwin,  
ingress addon is not supported.
```

```
Alternatively to use this addon you can use a vm-based driver:
```

```
'minikube start --vm=true'
```

```
To track the update on this work in progress feature please check:  
https://github.com/kubernetes/minikube/issues/7332
```

# Setting up Kubernetes Cluster with MiniKube

```
>_
$ minikube start --vm=true
😊 minikube v1.16.0 on Darwin 10.15.7
⭐ Automatically selected the hyperkit driver
👍 Starting control plane node minikube in cluster minikube
⌚ Creating hyperkit VM (CPUs=2, Memory=4000MB, Disk=20000MB) ...
🕒 Preparing Kubernetes v1.20.0 on Docker 20.10.0 ...
  ▪ Generating certificates and keys ...
  ▪ Booting up control plane ...
  ▪ Configuring RBAC rules ...
🔑 Verifying Kubernetes components...
🛠 Enabled addons: storage-provisioner, default-storageclass

  ▪ Want kubectl v1.20.0? Try 'minikube kubectl -- get pods -A'
🕒 Done! kubectl is now configured to use "minikube" cluster and "default" namespace
by default

$ minikube addons enable ingress
⌚ Verifying ingress addon...
🛠 The 'ingress' addon is enabled
```

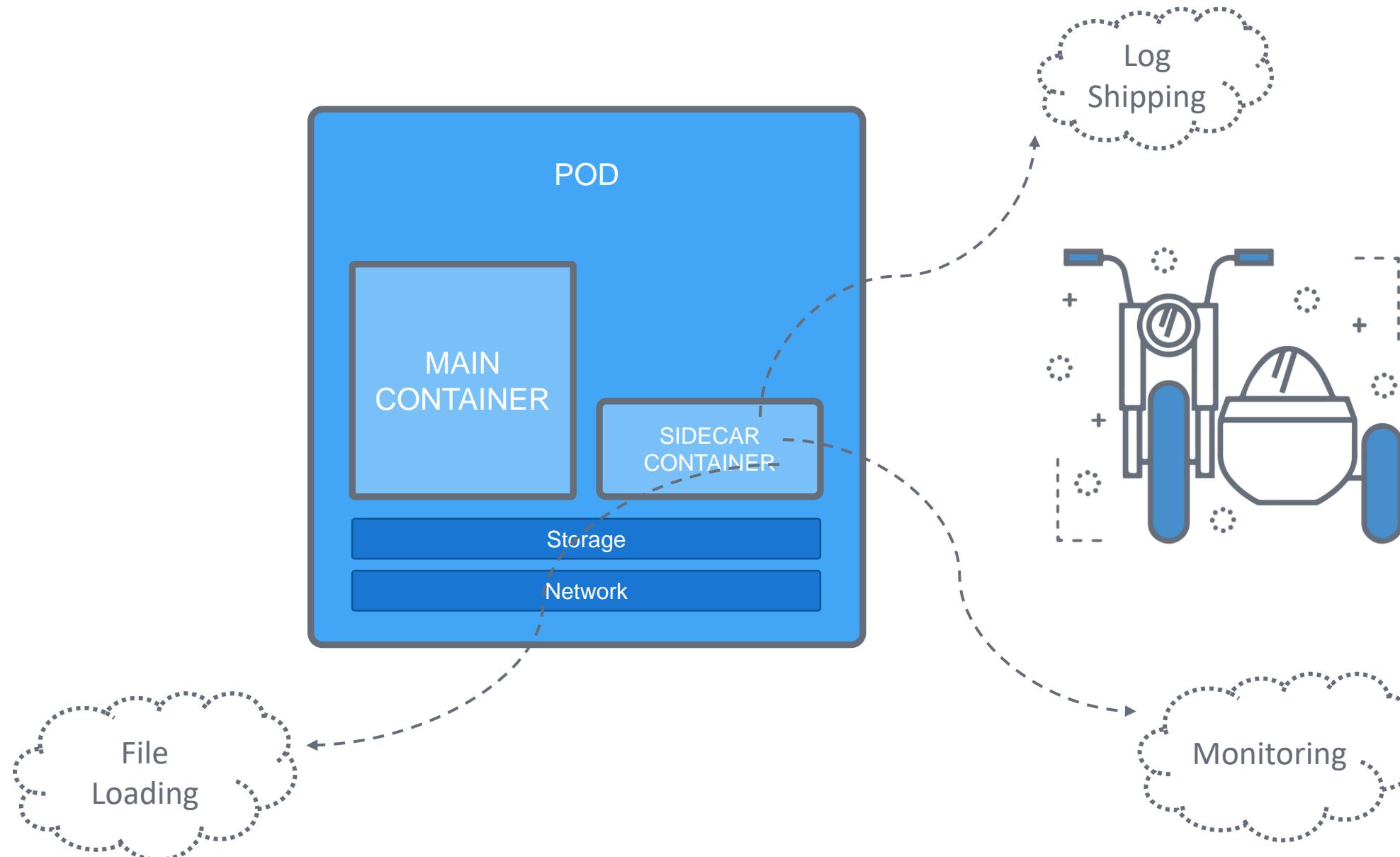


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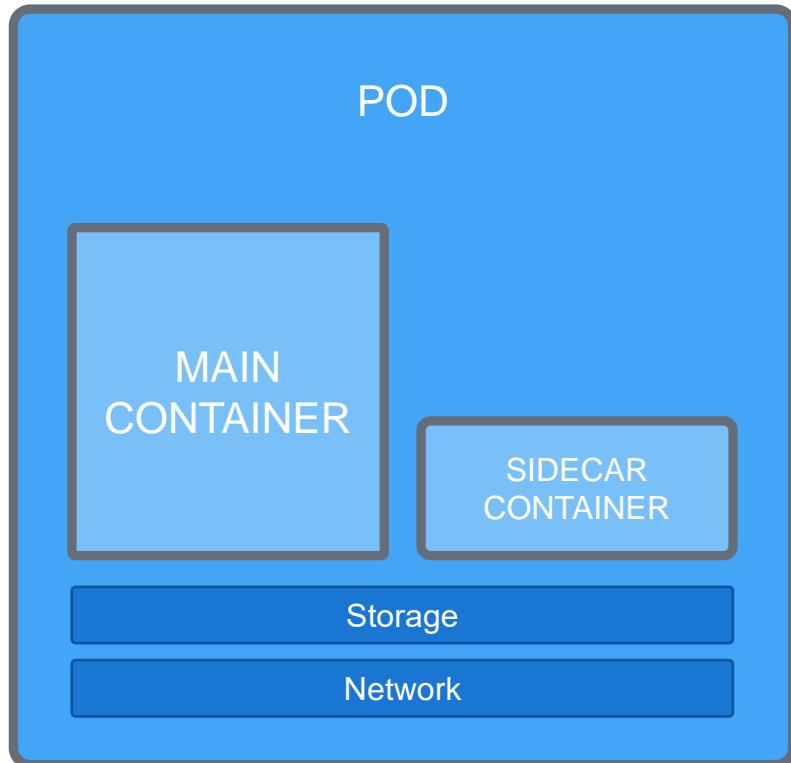
# SIDE CARS



# Sidecars



# Sidecars



`pod.yaml`

```
containers:  
  - name: nginx-container  
    image: nginx  
    volumeMounts:  
      - name: shared-data  
        mountPath: /usr/share/nginx/html  
  - name: sidecar-container  
    image: fluent/fluentd  
    volumeMounts:  
      - name: shared-data  
        mountPath: /pod-data
```

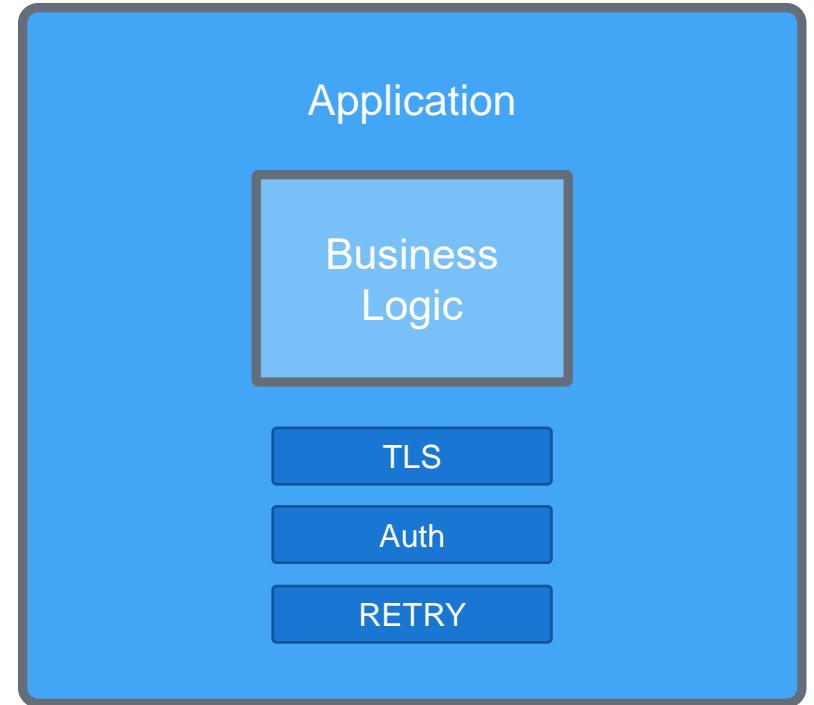


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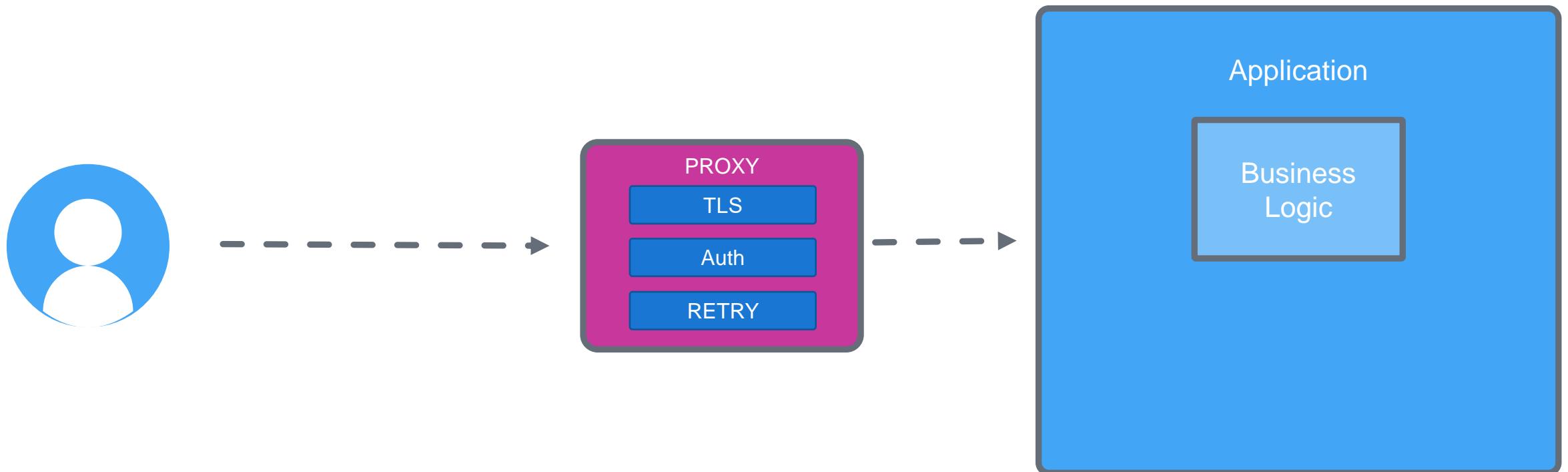
# ENVOY

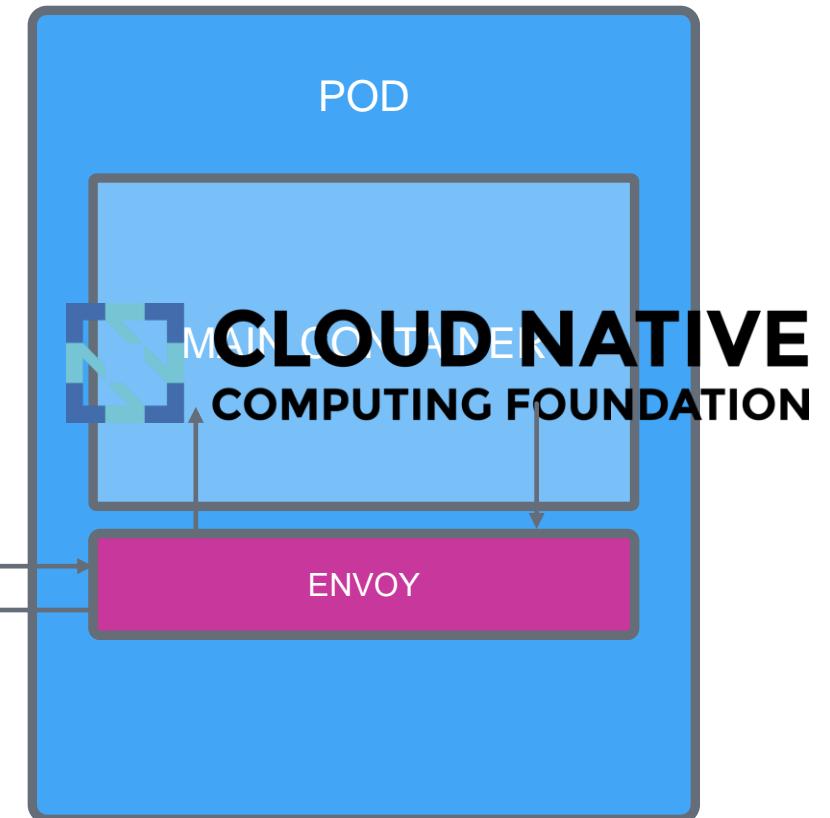


# Proxy



# Proxy







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# SECTION INTRODUCTION



# Objectives

Monoliths & Microservices

What is a Service Mesh?

Istio

Installing Istioctl

Installing Istio on Your Cluster

Deploying Our First App with Istio

Visualizing Service Mesh with Kiali

Installing Kiali

Create Traffic Into Your Mesh

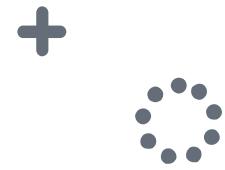


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# MONOLITHS & MICROSERVICES



# Software Development until the 2000s



# Agile Manifesto



## Individuals & Interactions



## Working Software

**"We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:"**



## Customer Collaboration



## Responding to Change

Processes and Tools

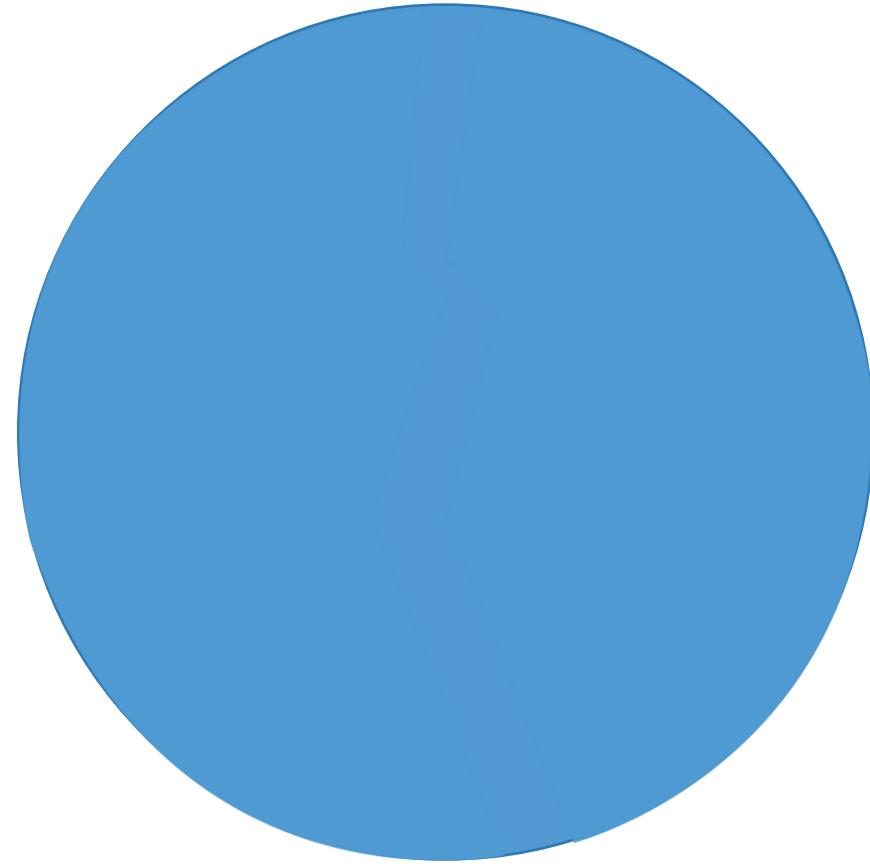
Comprehensive Documentation

Contract Negotiation

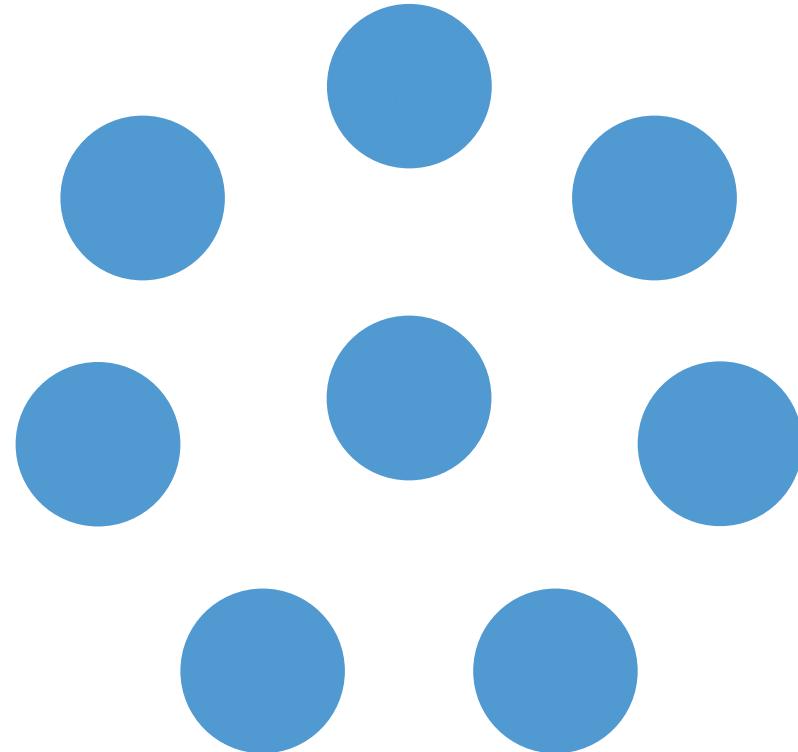
Following a plan

**"That is, while there is value in the items on the right, we value the items on the left more."**

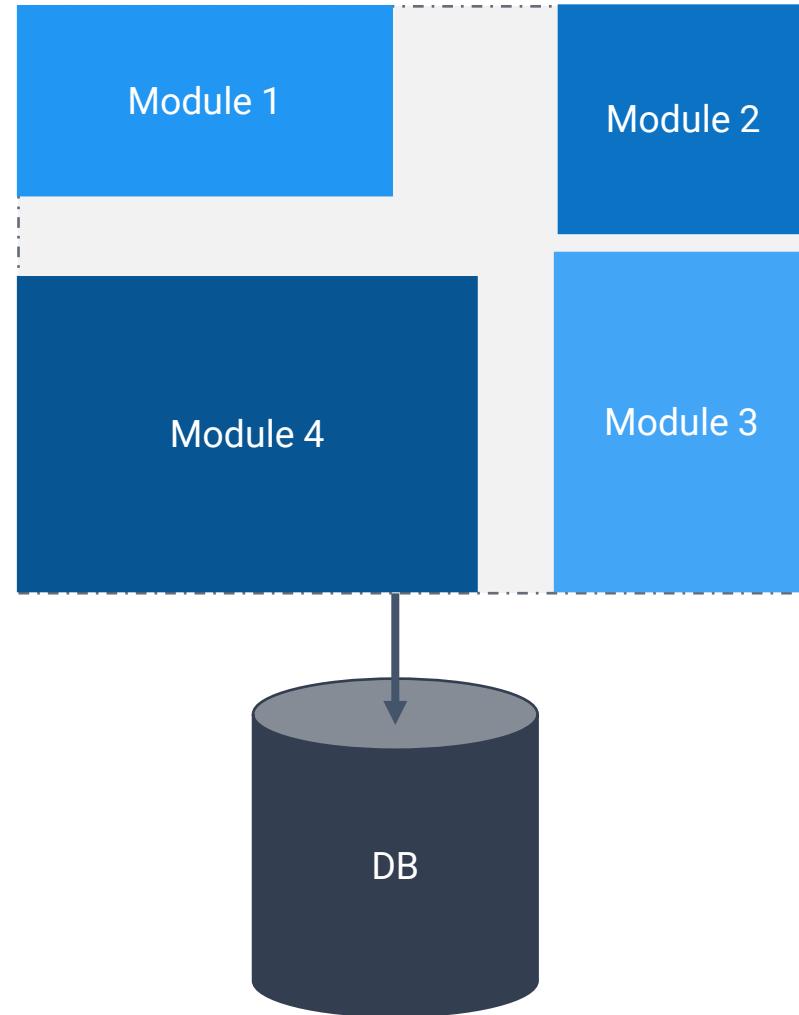
# Agile Practices



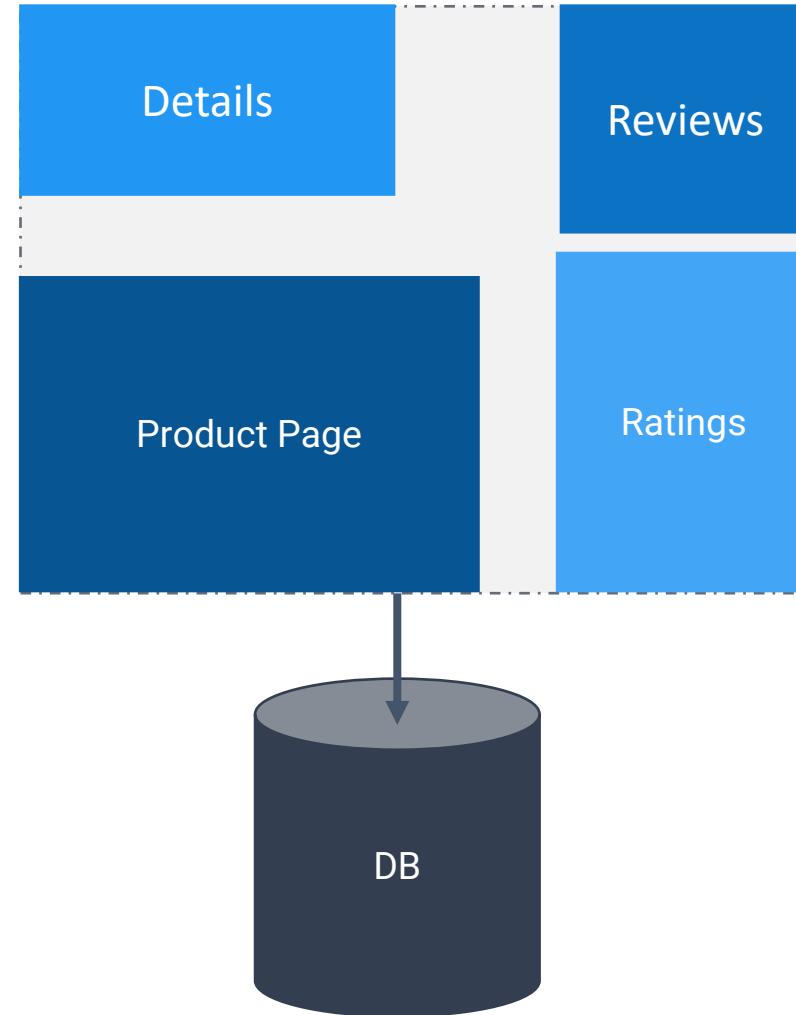
# Agile Practices



# Monolithic Applications



# A Monolithic Book Info App



# A Monolithic Book Info App

BookInfo Sample

Sign in

## 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

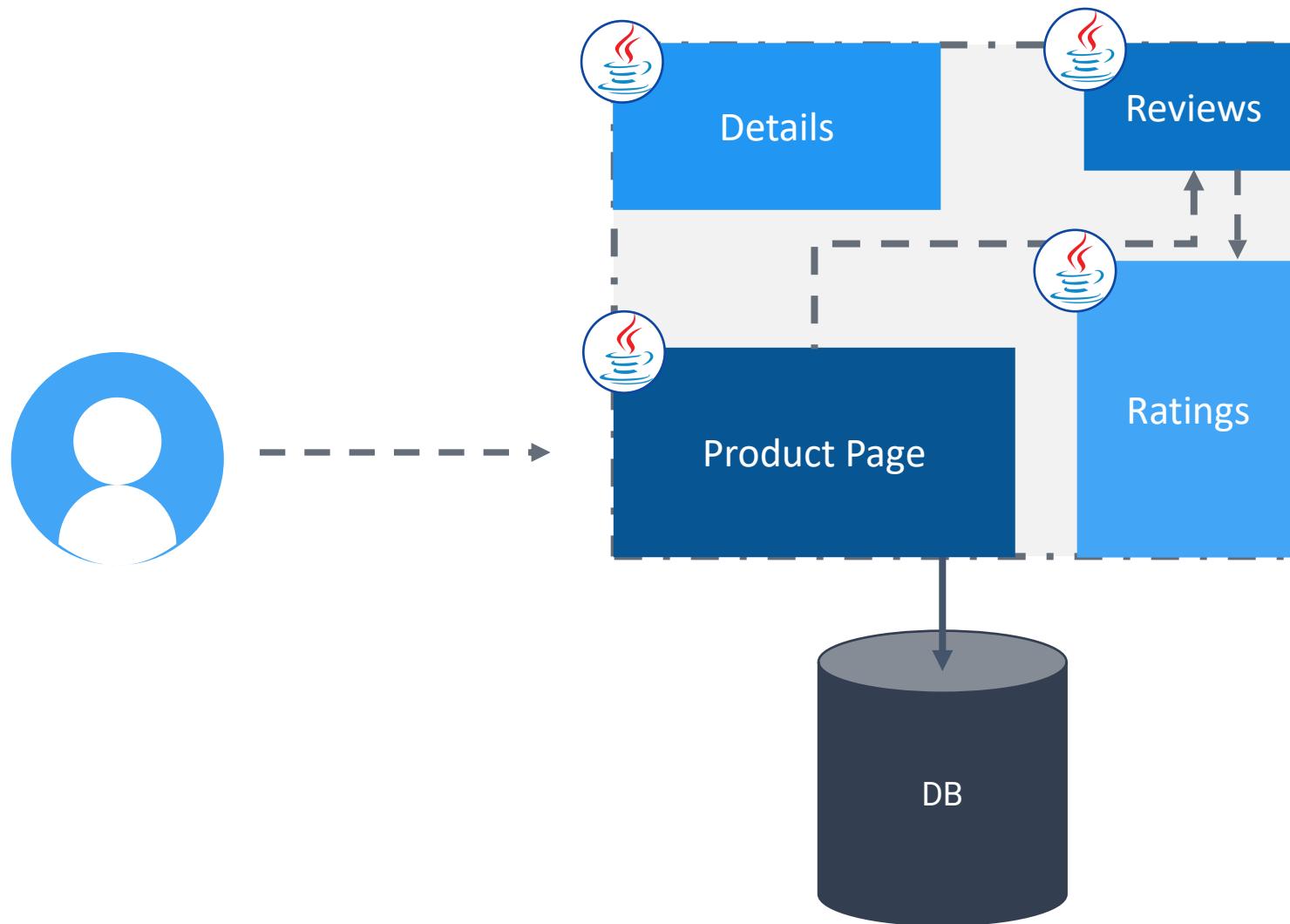


Absolutely fun and entertaining. The play lacks thematic depth when compared to other plays by Shakespeare.

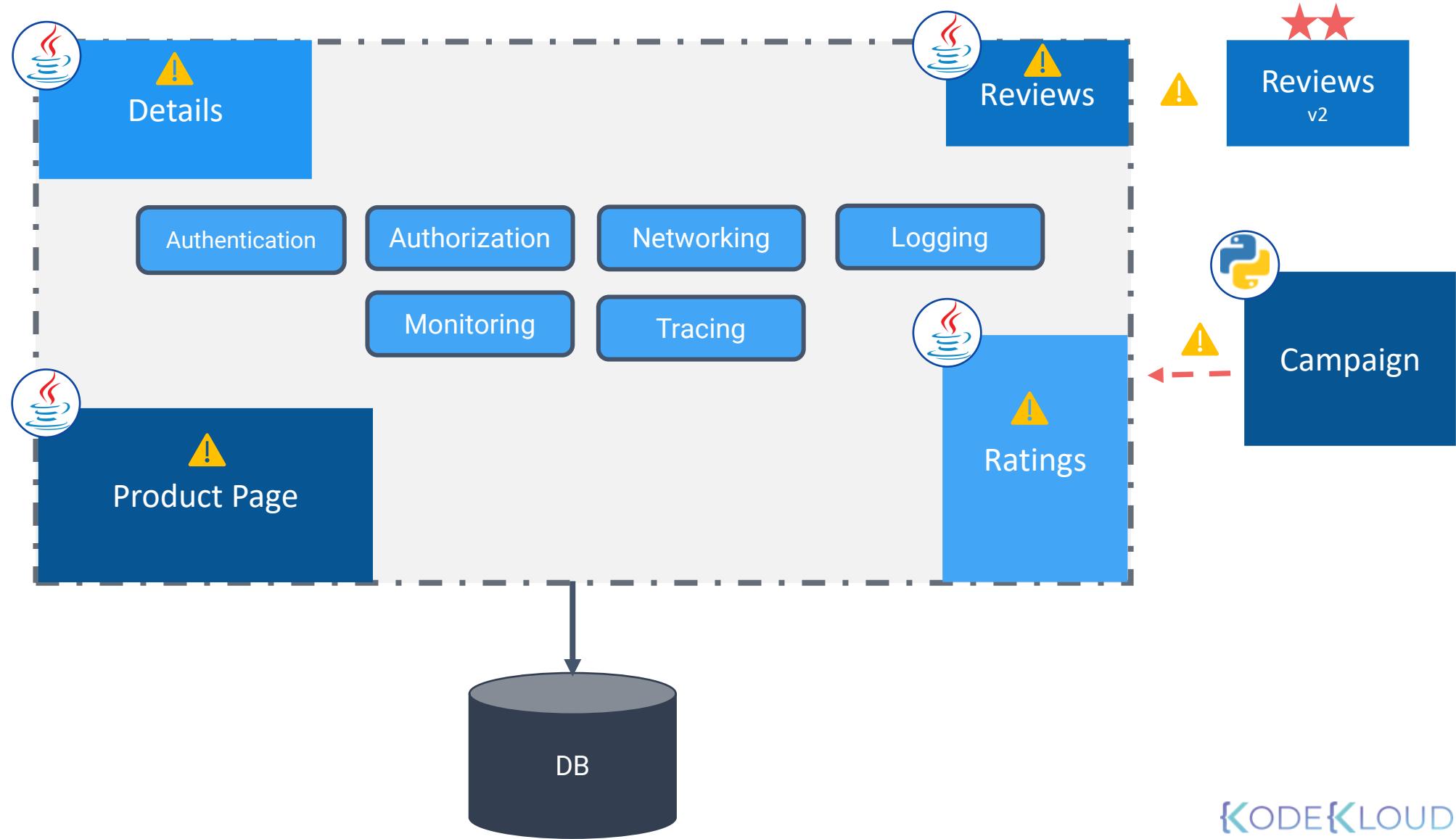
— Reviewer2



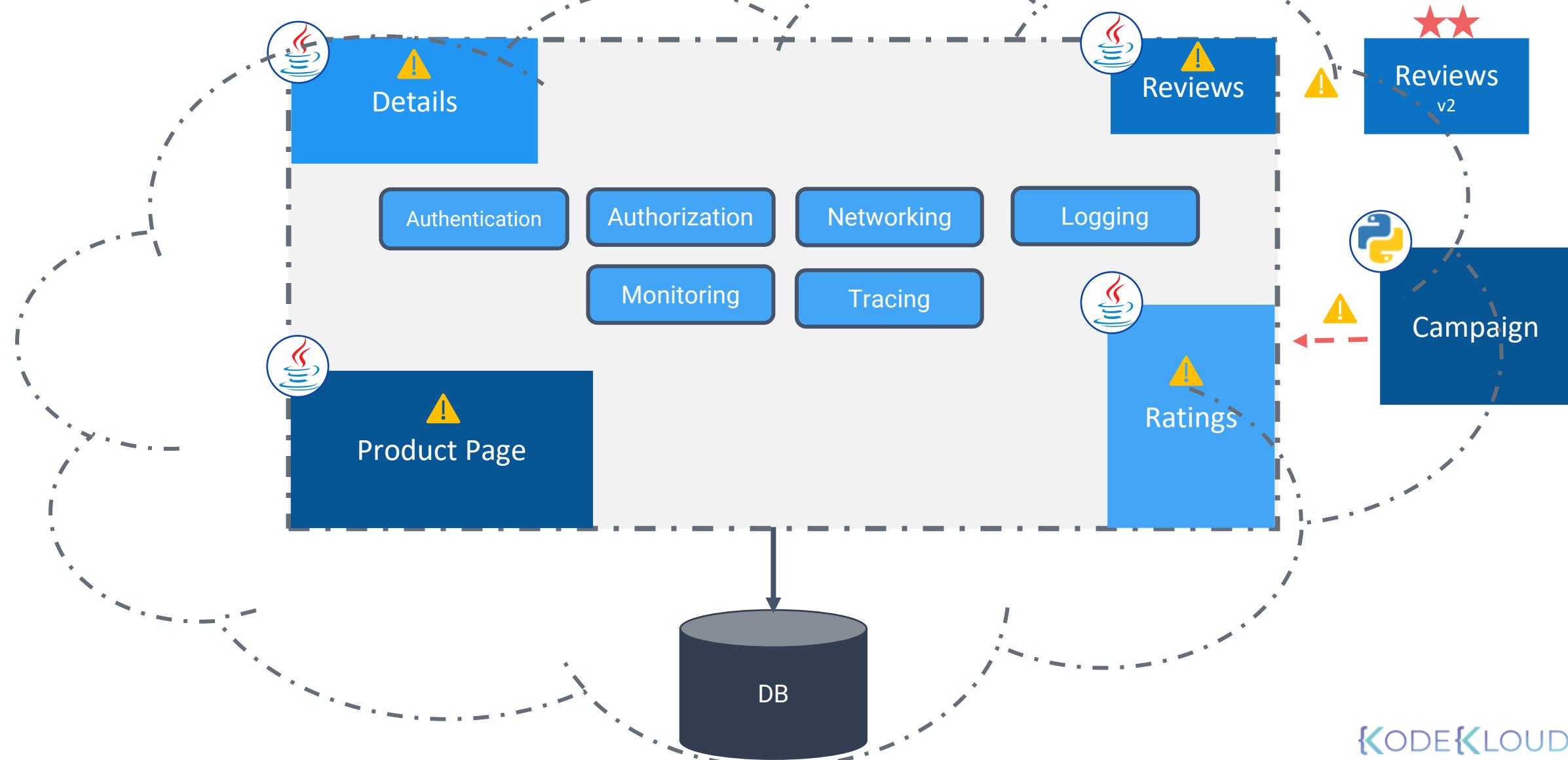
# A Monolithic Book Info App



# A Monolithic Book Info App



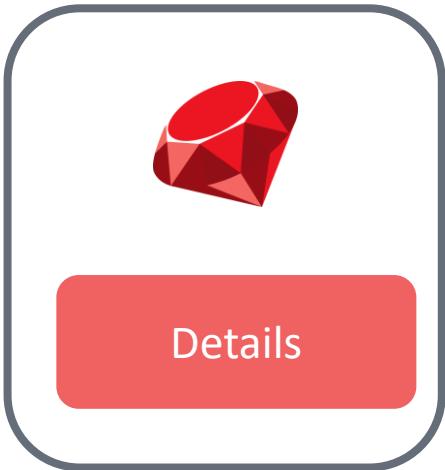
# A Big Ball of Mud



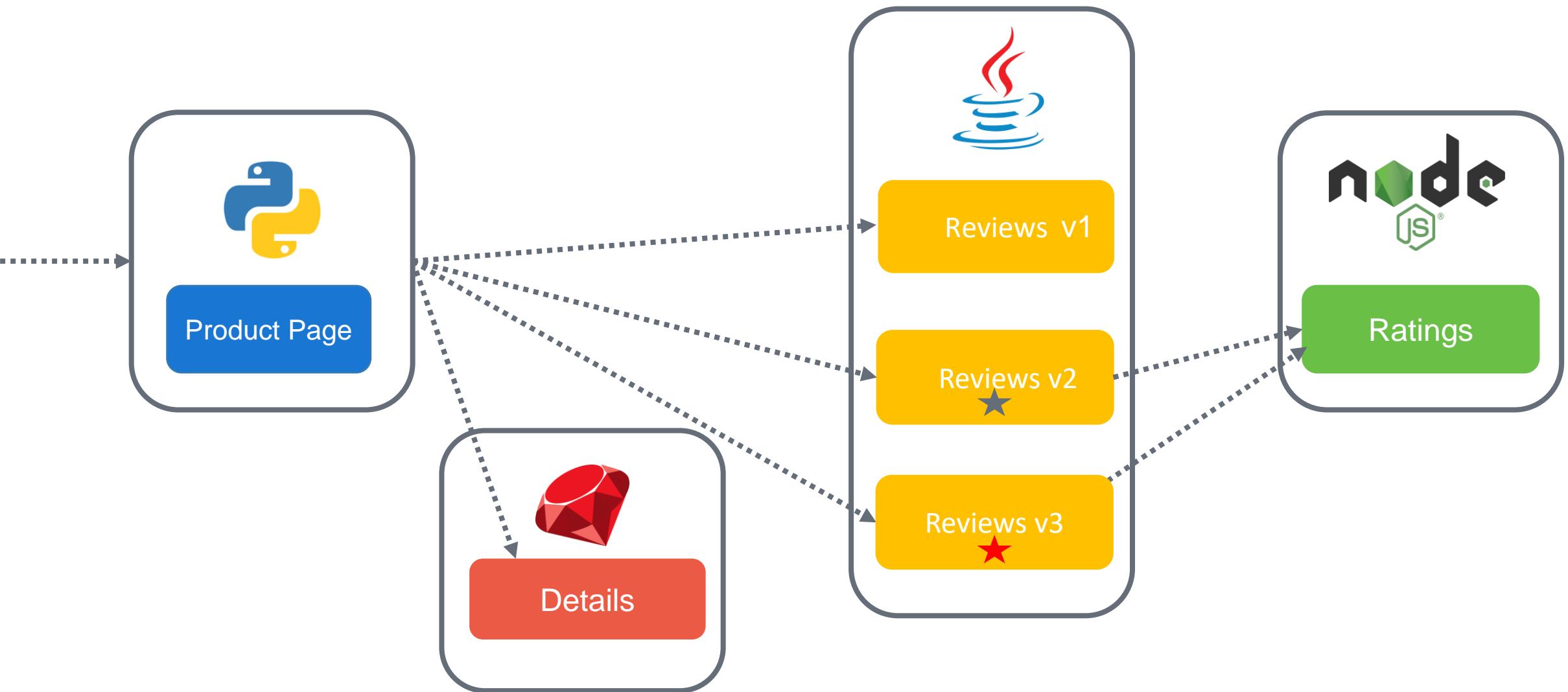
# A Monolithic Book Info App



# A Microservices Book Info App



# A Microservices Book Info App



# Pros of Microservices



**Scalability**



**Faster, smaller releases**



**Technology and language agnostic  
Development lifecycle**

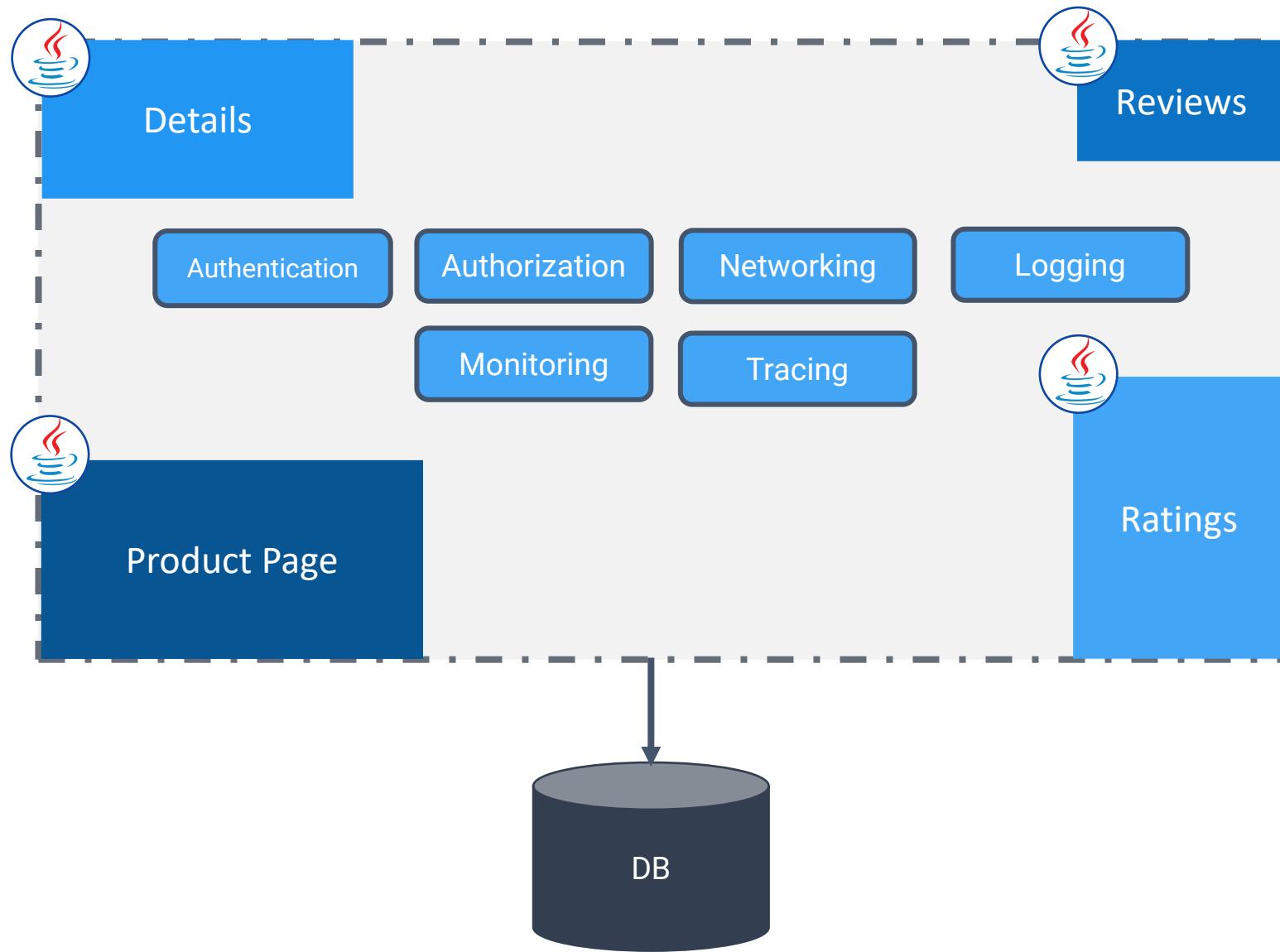


**System resiliency and isolation**



**Independent and easy  
to understand services**

# A Monolithic Book Info App



# A Microservices Book Info App

Authentication

Authorization

Networking

Logging

Monitoring

Tracing



Product Page



Details

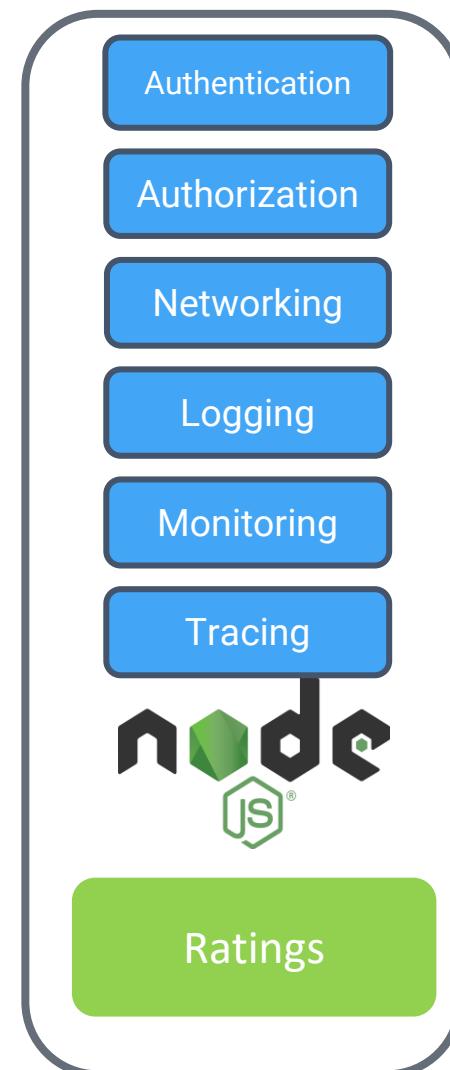
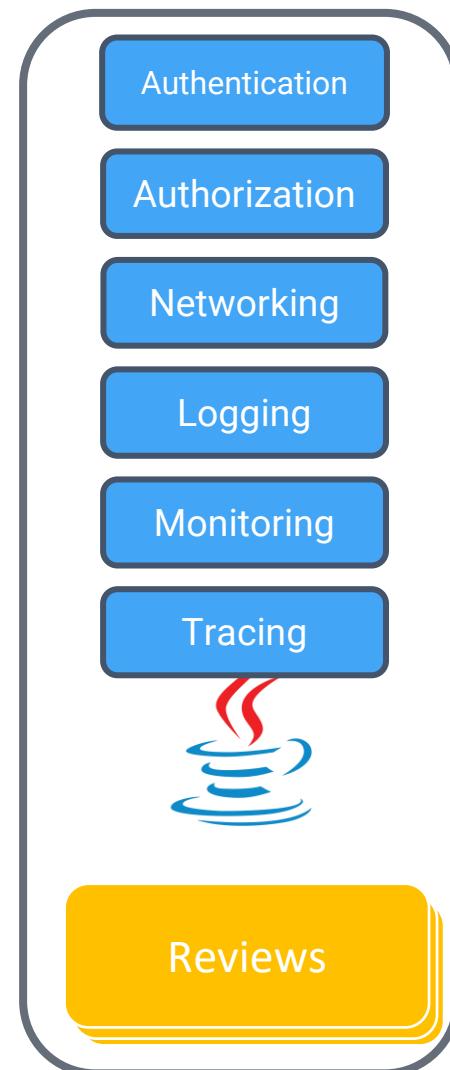
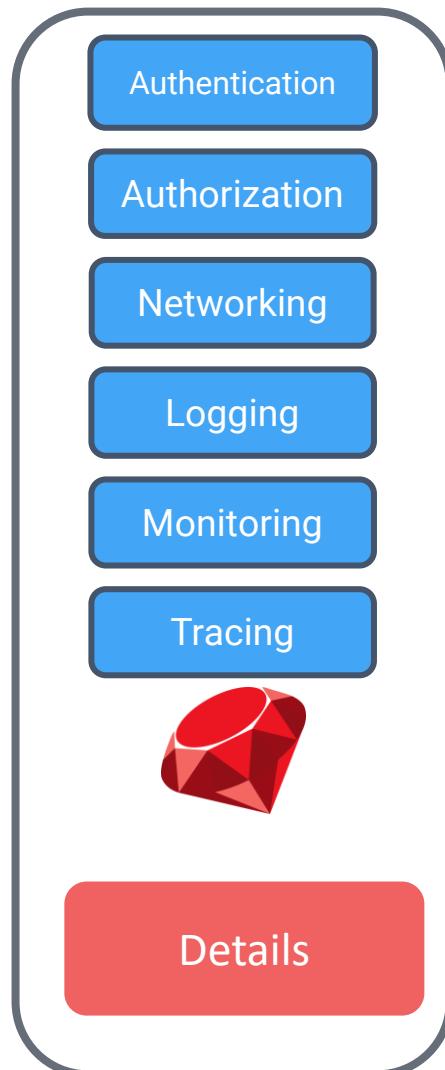
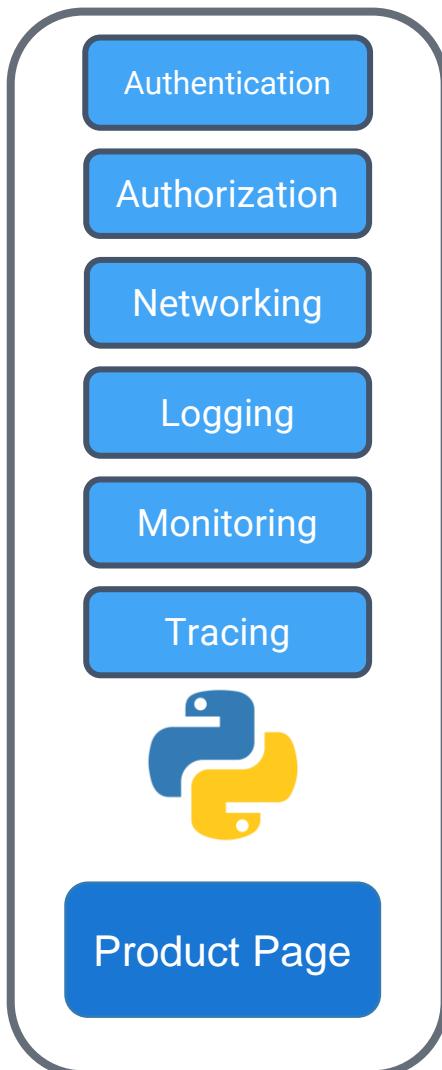


Reviews



Ratings

# A Problem: Fat Microservices



# Cons of Microservices



**Complex Service Networking**



**Security**



**Observability**



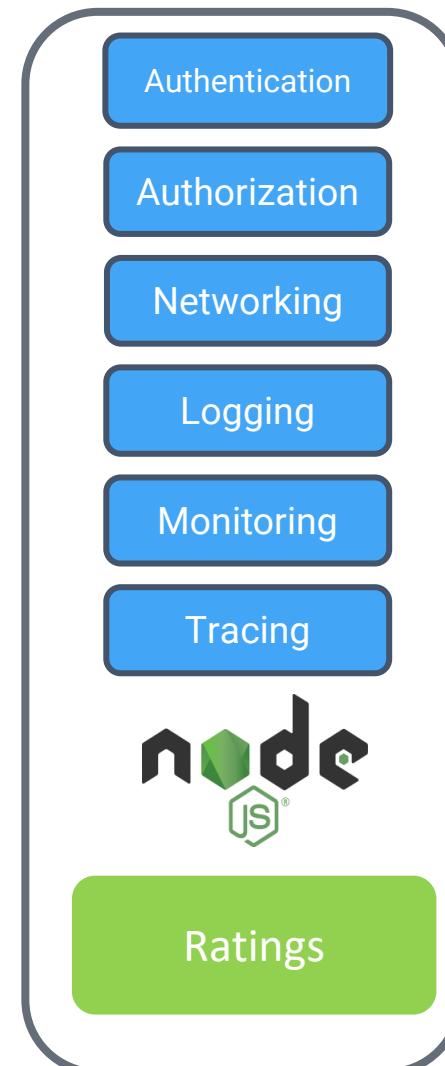
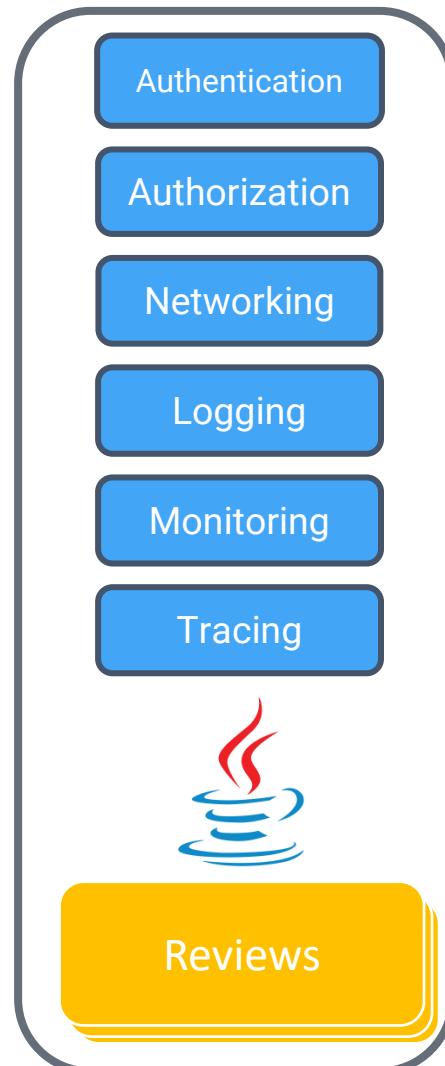
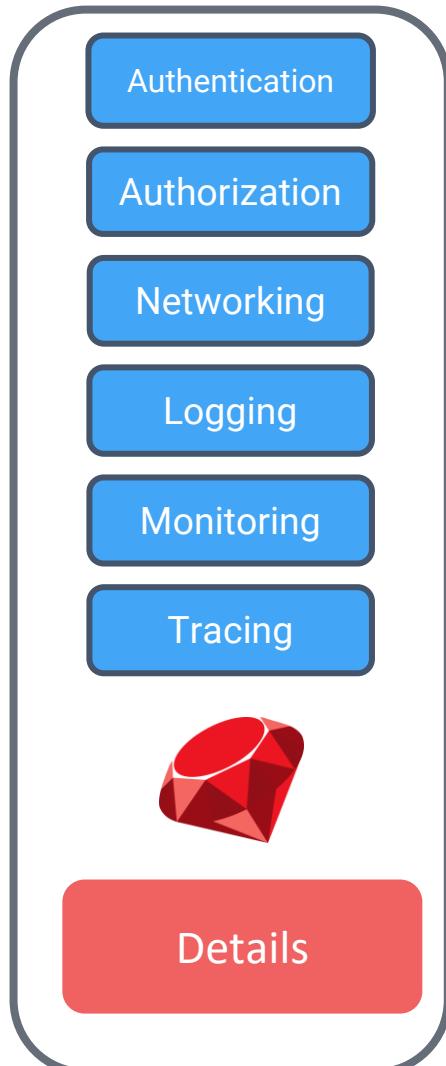
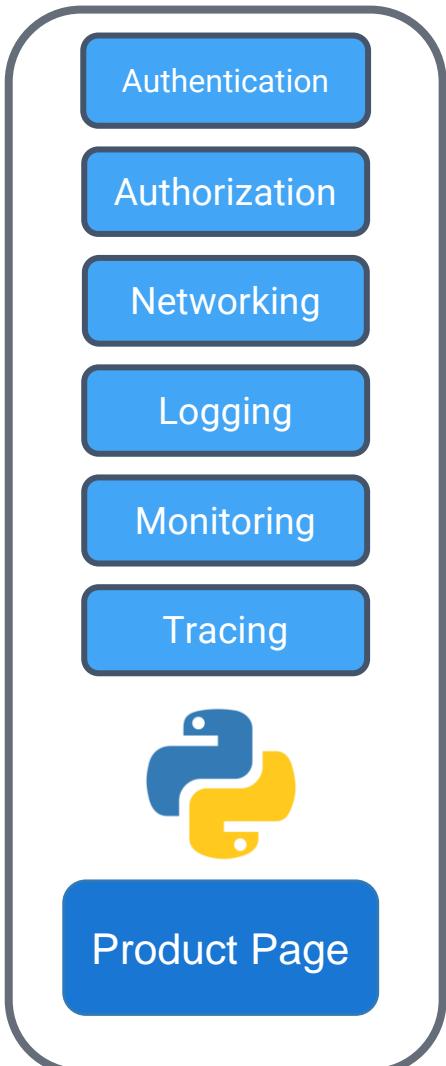
**Overload for  
Traditional Operation Models**

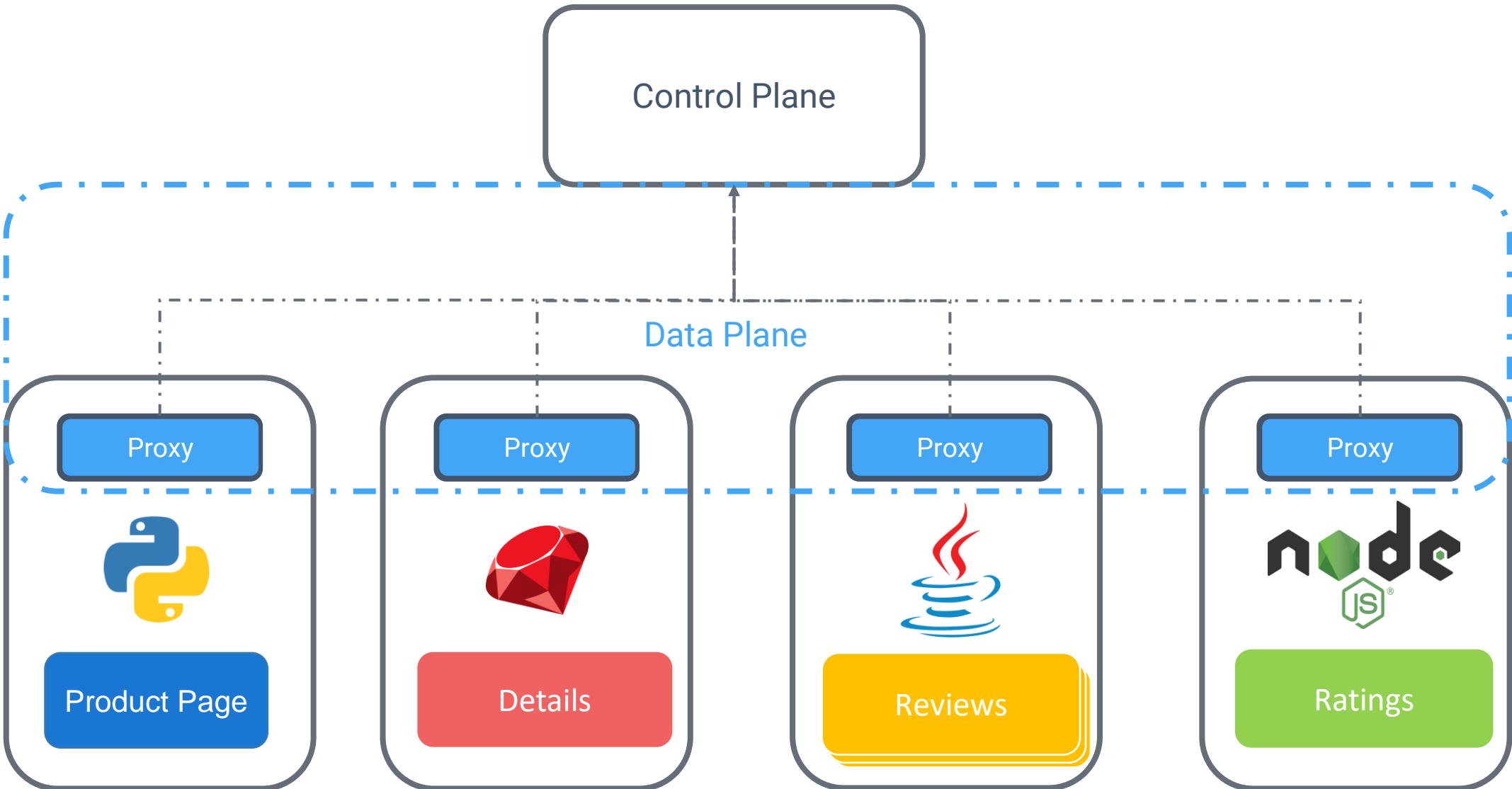


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# SERVICE MESH



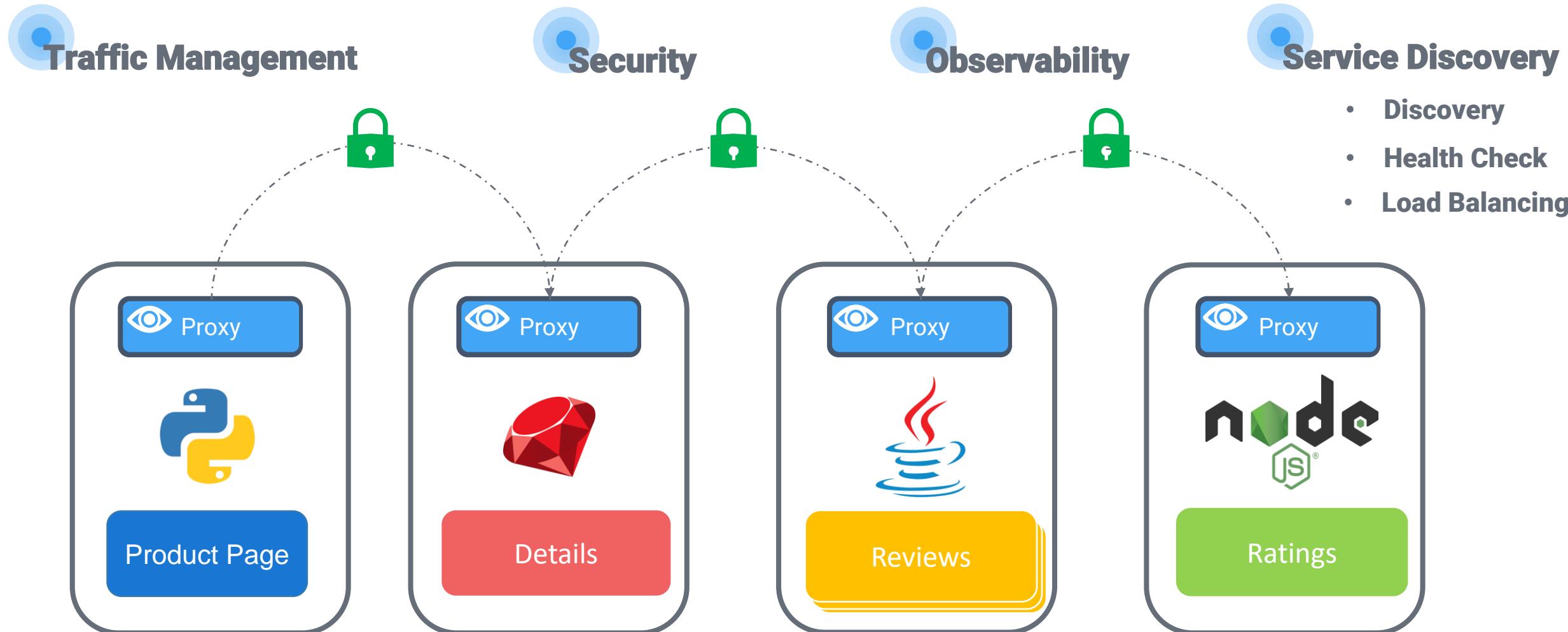




# What is Service Mesh?

**It is a dedicated and configurable infrastructure layer that handles the communication between services without having to change the code in a microservice architecture.**

# What is Service Mesh Responsible For?





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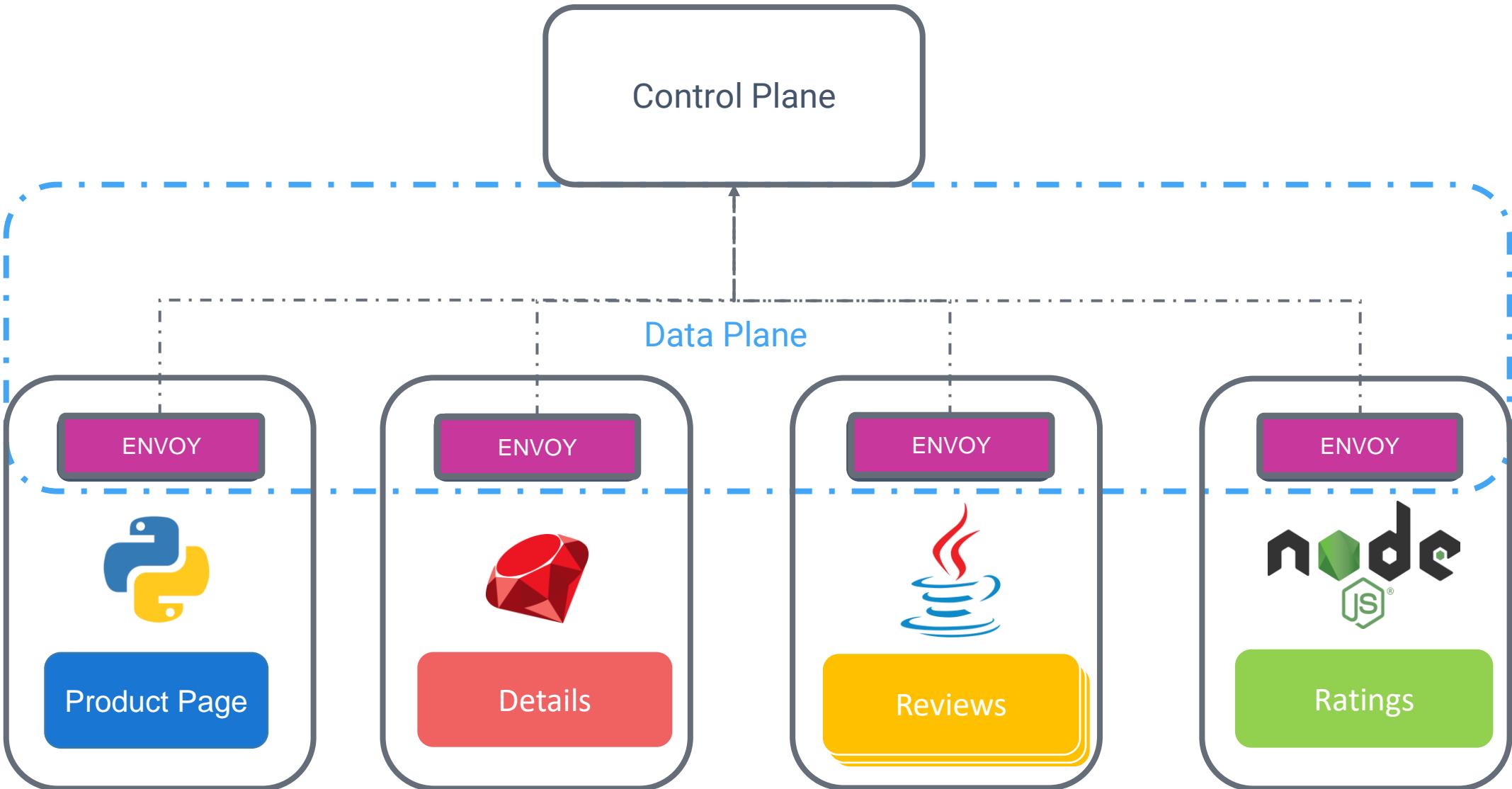
# ISTIO

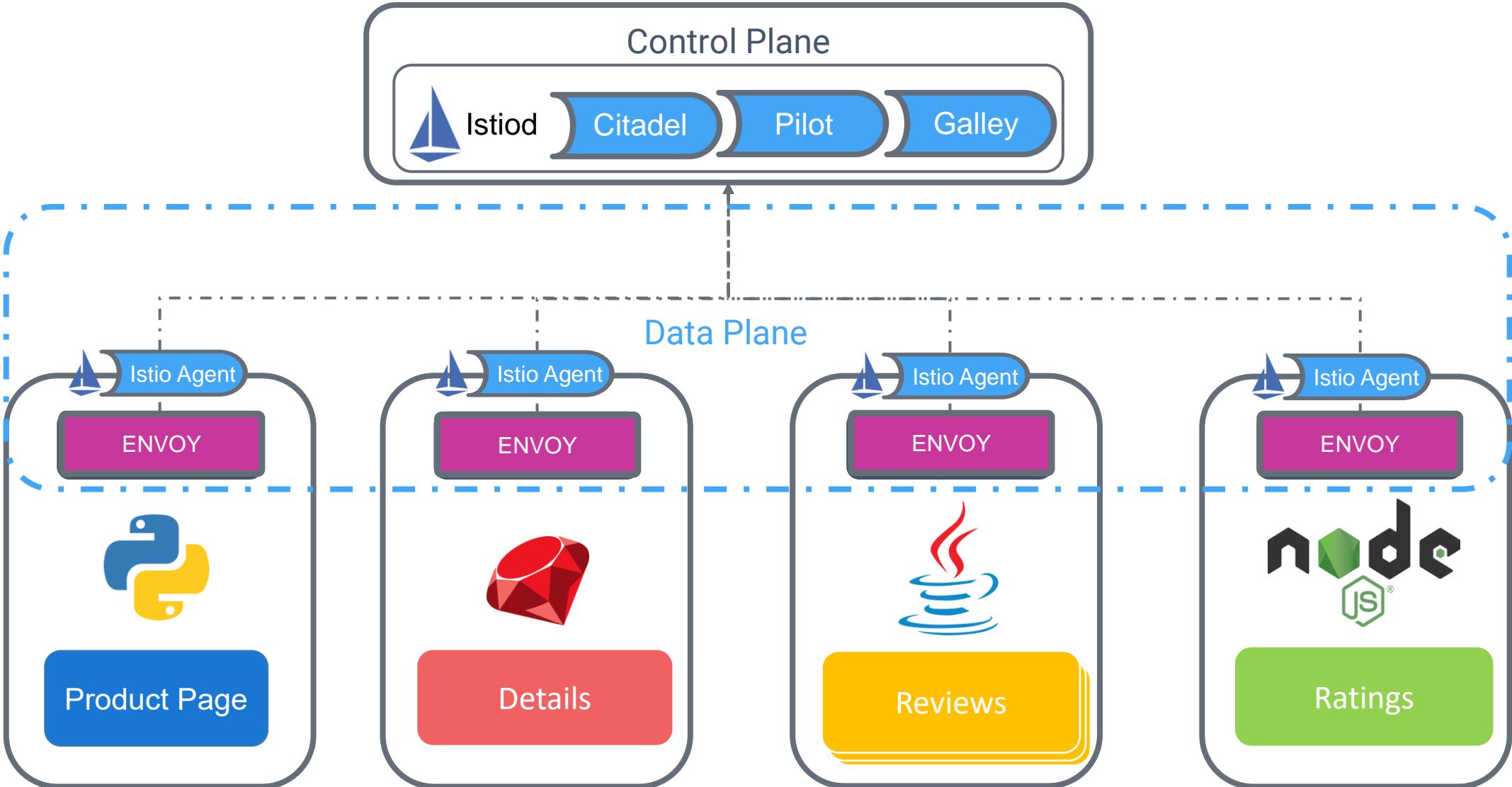




**kubernetes**









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# INSTALLING ISTIOCTL



# Installing `istioctl`

```
>_
```

```
$ curl -L https://istio.io/downloadIstio | sh -
```

% Total	% Received	% Xferd	Average Speed	Time Dload	Time Upload	Time Total	Time Spent	Time Left	Current Speed
100	102	100	102	0	0	123	0	--:--:--	123
100	4573	100	4573	0	0	3606	0	0:00:01	3606

```
Downloading istio-1.9.4 from
https://github.com/istio/istio/releases/download/1.9.4/istio-1.9.4-osx.tar.gz ...
Istio 1.9.4 Download Complete!
```

Istio has been successfully downloaded into the `istio-1.9.4` folder on your system.

Next Steps:

See <https://istio.io/latest/docs/setup/install/> to add Istio to your Kubernetes cluster.

To configure the `istioctl` client tool for your workstation, add the `/Users/sevikarakose/Downloads/istio-1.9.4/bin` directory to your environment path variable with:

```
export PATH="$PATH:/Users/sevikarakose/Downloads/istio-1.9.4/bin"
```

Begin the Istio pre-installation check by running:  
`istioctl x precheck`

Need more information? Visit <https://istio.io/latest/docs/setup/install/>

# Installing *istioctl*

```
>_
$ cd istio-1.10.0
$ ls
LICENSE          README.md        bin           manifest.yaml  manifests
samples          tools
$ export PATH=$PWD/bin:$PATH
$ istioctl verify-install
0 Istio control planes detected, checking --revision "default" only
0 Istio injectors detected
Error: could not load IstioOperator from cluster: the server could not find the
requested resource. Use --filename
```



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# INSTALLING ISTIO ON YOUR CLUSTER







Install with  
Istioctl

```
>_
```

```
$ istioctl install --set profile=demo -y
```

```
Detected that your cluster does not support third party JWT authentication. Falling back to less secure first party JWT. See https://istio.io/v1.9/docs/ops/best-practices/security/#configure-third-party-service-account-tokens for details.
```

```
Istio core installed
```

- ✓ Istiod installed
- ✓ Ingress gateways installed
- ✓ Egress gateways installed
- ✓ Installation complete

```
istio-ingressgateway
```

```
Istiod
```

```
istio-egressgateway
```



```
istio-system
```

```
>_
```

```
$ istioctl verify-install

1 Istio control planes detected, checking --revision "default" only
✓ Deployment: istio-ingressgateway.istio-system checked successfully
✓ PodDisruptionBudget: istio-ingressgateway.istio-system checked successfully
✓ Role: istio-ingressgateway-sds.istio-system checked successfully
✓ RoleBinding: istio-ingressgateway-sds.istio-system checked successfully
✓ Service: istio-ingressgateway.istio-system checked successfully
✓ ServiceAccount: istio-ingressgateway-service-account.istio-system checked successfully
✓ Deployment: istio-egressgateway.istio-system checked successfully
✓ PodDisruptionBudget: istio-egressgateway.istio-system checked successfully
✓ Role: istio-egressgateway-sds.istio-system checked successfully
✓ RoleBinding: istio-egressgateway-sds.istio-system checked successfully
✓ Service: istio-egressgateway.istio-system checked successfully
✓ ServiceAccount: istio-egressgateway-service-account.istio-system checked successfully
✓ ClusterRole: istiod-istio-system.istio-system checked successfully

✓ EnvoyFilter: tcp-stats-filter-1.9.istio-system checked successfully
Checked 12 custom resource definitions
Checked 3 Istio Deployments
✓ Istio is installed and verified successfully
```



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# DEPLOYING OUR FIRST APPLICATION WITH ISTIO



>\_

```
$ kubectl apply -f samples/bookinfo/platform/kube/bookinfo.yaml
deployment.apps/details-v1 created
deployment.apps/ratings-v1 created
deployment.apps/reviews-v1 created
deployment.apps/reviews-v2 created
deployment.apps/reviews-v3 created
deployment.apps/productpage-v1 created
...
```

Product Page

Details

Reviews v1

Reviews v2

Ratings

Reviews v3

>\_

```
$ kubectl get pods -A
```

NAMESPACE	NAME
default	details-v1-66b6955995-zgrd8
default	productpage-v1-5d9b4c9849-dckrt
default	ratings-v1-fd78f799f-s94cc
default	reviews-v1-6549ddccc5-bxv4n
default	reviews-v2-76c4865449-2qmhj
default	reviews-v3-6b554c875-vbf8v

READY	STATUS	RESTARTS	AGE
1/1	Running	0	6m57s
1/1	Running	0	6m57s
1/1	Running	0	6m58s
1/1	Running	0	6m58s
1/1	Running	0	6m58s
1/1	Running	0	6m58s

Proxy ?

Product Page

Proxy ?

Details

Proxy ?

Reviews v1

Proxy ?

Reviews v2

Proxy ?

Reviews v3

Proxy ?

Ratings

default

```
>_
```

```
$ istioctl analyze
```

```
| Info [IST0102] (Namespace default) The namespace is not enabled for Istio injection.  
| Run 'kubectl label namespace default istio-injection=enabled' to enable it, or  
| 'kubectl label namespace default istio-injection=disabled' to explicitly mark it as  
| not needing injection.
```

Proxy ?

Product Page

Proxy ?

Details

Proxy ?

Reviews v1

Proxy ?

Reviews v2

Proxy ?

Reviews v3

Proxy ?

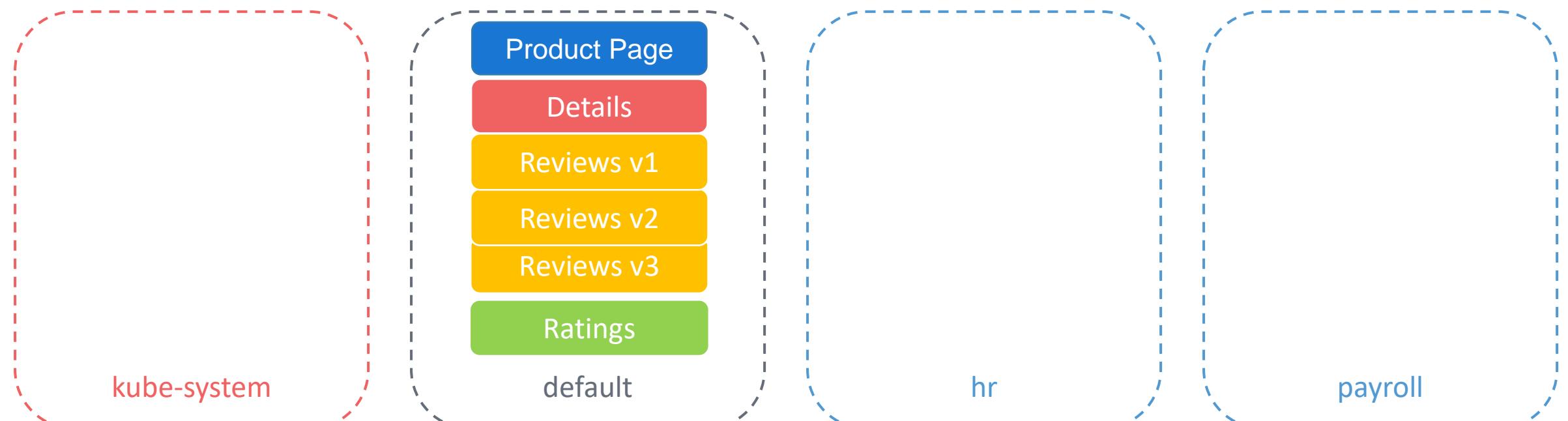
Ratings

default

```
>_
```

```
$ istioctl analyze
```

```
[Info [IST0102] (Namespace default) The namespace is not enabled for Istio injection.  
Run 'kubectl label namespace default istio-injection=enabled' to enable it, or  
'kubectl label namespace default istio-injection=disabled' to explicitly mark it as  
not needing injection.
```



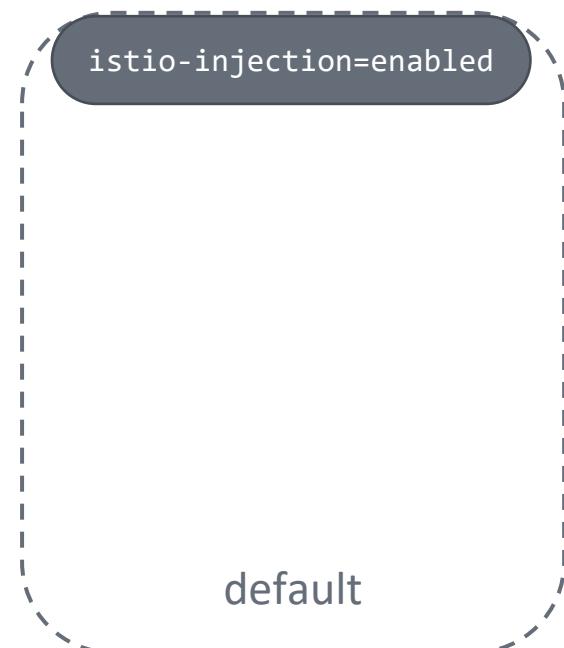
>\_

```
$ kubectl delete -f samples/bookinfo/platform/kube/bookinfo.yaml
service "details" deleted
serviceaccount "bookinfo-details" deleted
service "ratings" deleted
serviceaccount "bookinfo-ratings" deleted
serviceaccount "bookinfo-reviews" deleted
service "productpage" deleted
serviceaccount "bookinfo-productpage" deleted
```



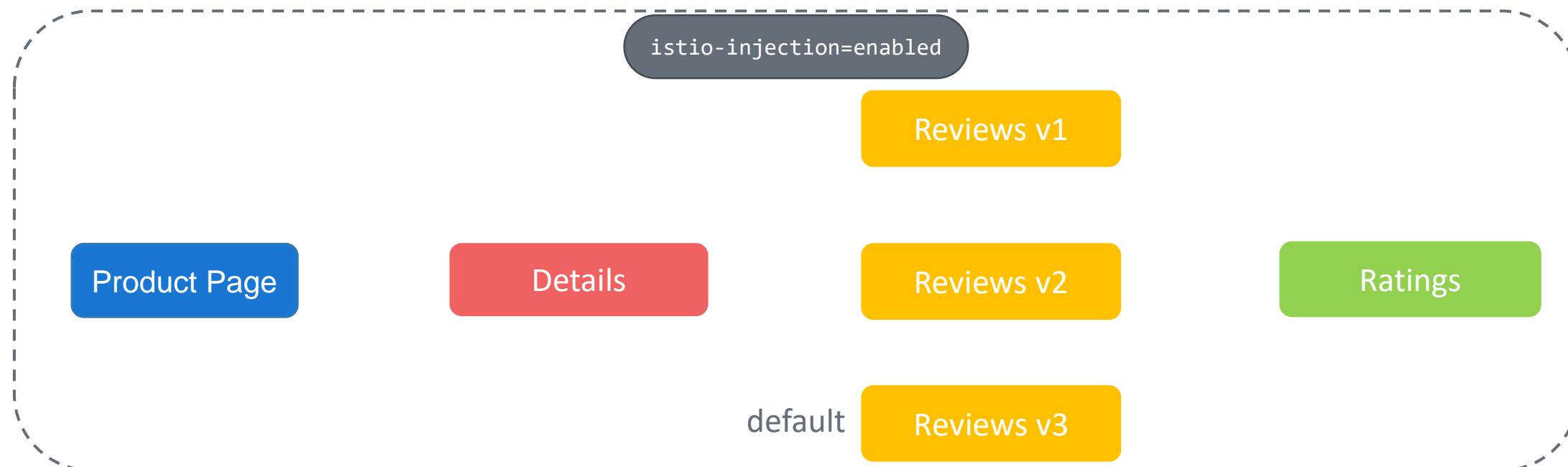
```
>_
```

```
$ kubectl label namespace default istio-injection=enabled  
namespace/default labeled
```



```
>_
```

```
$ kubectl apply -f samples/bookinfo/platform/kube/bookinfo.yaml
deployment.apps/details-v1 created
deployment.apps/ratings-v1 created
deployment.apps/reviews-v1 created
deployment.apps/reviews-v2 created
deployment.apps/reviews-v3 created
service/productpage created
deployment.apps/productpage-v1 created
...
```



```
>_
```

```
$ istioctl analyze
```

```
✓ No validation issues found when analyzing namespace: default.
```

istio-injection=enabled

Reviews v1

Product Page

Details

Reviews v2

Ratings

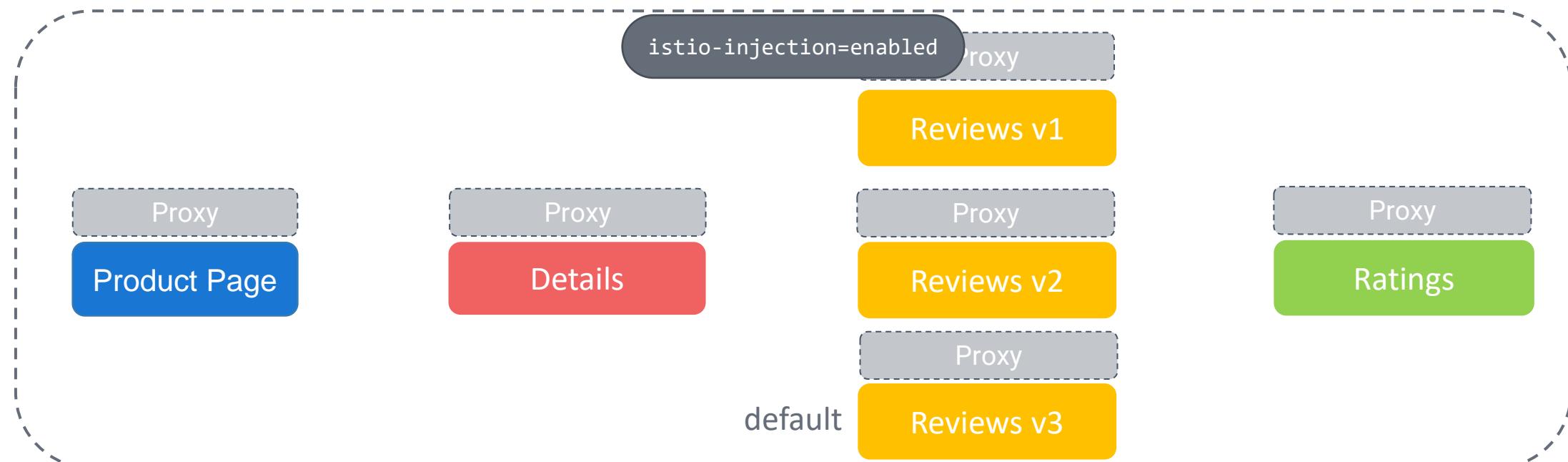
default

Reviews v3

```
>_
```

```
$ kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
details-v1-5f449bdbb9-vrgzh	2/2	Running	0	26s
productpage-v1-6f9df695b7-cx259	2/2	Running	0	26s
ratings-v1-857bb87c57-hmpfd	2/2	Running	0	26s
reviews-v1-68f9c47f69-cbj7c	2/2	Running	0	26s
reviews-v2-5d56c488f5-wb4v7	2/2	Running	0	26s
reviews-v3-869ff44845-h5fpf	2/2	Running	0	26s

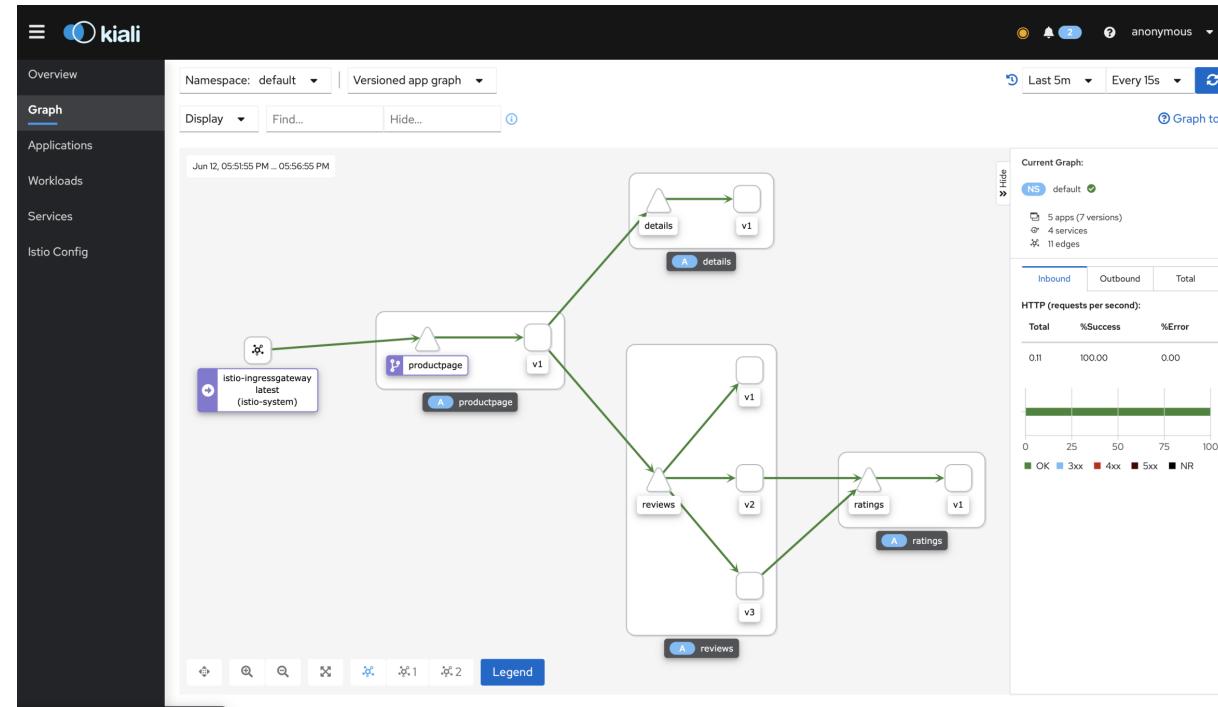




{KODE}{CLOUD}

# VISUALIZING SERVICE MESH WITH KIALI







{KODE}{CLOUD}

# INSTALLING KIALI



```
>_
$ kubectl apply -f samples/addons
$ kubectl rollout status deployment/kiali -n istio-system

monitoringdashboard.monitoring.kiali.io/springboot-jvm created
monitoringdashboard.monitoring.kiali.io/springboot-tomcat created
monitoringdashboard.monitoring.kiali.io/thorntail created
monitoringdashboard.monitoring.kiali.io/tomcat created
monitoringdashboard.monitoring.kiali.io/vertx-client created
monitoringdashboard.monitoring.kiali.io/vertx-eventbus created
monitoringdashboard.monitoring.kiali.io/vertx-jvm created
monitoringdashboard.monitoring.kiali.io/vertx-pool created
monitoringdashboard.monitoring.kiali.io/vertx-server created
serviceaccount/prometheus created
configmap/prometheus created
clusterrole.rbac.authorization.k8s.io/prometheus created
clusterrolebinding.rbac.authorization.k8s.io/prometheus created
service/prometheus created
deployment.apps/prometheus created
Waiting for deployment "kiali" rollout to finish: 0 of 1 updated replicas are
available...
deployment "kiali" successfully rolled out
```

```
>_
```

```
$ kubectl -n istio-system get svc kiali
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
kiali	ClusterIP	10.96.6.123	<none>	20001/TCP,9090/TCP	3m42s

```
>_
```

```
$ istioctl dashboard kiali
```

```
http://localhost:20001/kiali
```

The screenshot shows the Kiali Overview dashboard. The left sidebar has tabs for Overview (which is selected), Graph, Applications, Workloads, Services, and Istio Config. The main area displays three cards representing namespaces:

- default**: Contains 1 Label and Istio Config. Status: N/A.
- istio-system**: Contains 1 Label and Istio Config. Status: N/A.
- local-path-storage**: Contains No labels and Istio Config. Status: N/A.

At the top right, there are filters for Namespace (dropdown), Filter by Namespace (text input), Name (dropdown), sorting (down arrow), time range (Last 1m, Every 10s), refresh button, and a dropdown for Health for (set to Apps). There are also icons for notifications (2 notifications) and user authentication (anonymous).



{KODE}{CLOUD}

# CREATE TRAFFIC INTO YOUR MESH



```
>_
$ istioctl analyze
✓ No validation issues found when analyzing namespace: default.
```

>\_

```
$ minikube ip
```

```
192.168.64.6
```

```
>_
```

```
$ export INGRESS_HOST=$(minikube ip)
```

```
>_
```

```
$ export INGRESS_PORT=$(kubectl -n istio-system get service istio-ingressgateway -o jsonpath='{.spec.ports[?(@.name=="http2")].nodePort}')
$ export SECURE_INGRESS_PORT=$(kubectl -n istio-system get service istio-ingressgateway -o jsonpath='{.spec.ports[?(@.name=="https")].nodePort}')
$ export TCP_INGRESS_PORT=$(kubectl -n istio-system get service istio-ingressgateway -o jsonpath='{.spec.ports[?(@.name=="tcp")].nodePort}')
```

```
>_
$ curl "http://$INGRESS_HOST:$INGRESS_PORT/productpage"
<!DOCTYPE html>
<html>
  <head>
    <title>Simple Bookstore App</title>
    <meta charset="utf-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <!-- Latest compiled and minified CSS -->
    <link rel="stylesheet" href="static/bootstrap/css/bootstrap.min.css">

    <!-- Optional theme -->
    <link rel="stylesheet" href="static/bootstrap/css/bootstrap-theme.min.css">

  </head>
  <body>
```

```
>_
```

```
$ while sleep 0.01;do curl -sS  
'http://'"$INGRESS_HOST"'':'"$INGRESS_PORT"' /productpage' \ &>  
/dev/null ; done
```

Overview

Graph

Applications

Workloads

Services

Istio Config

Namespace: default

Versioned app graph

Last 5m

Every 15s



Display

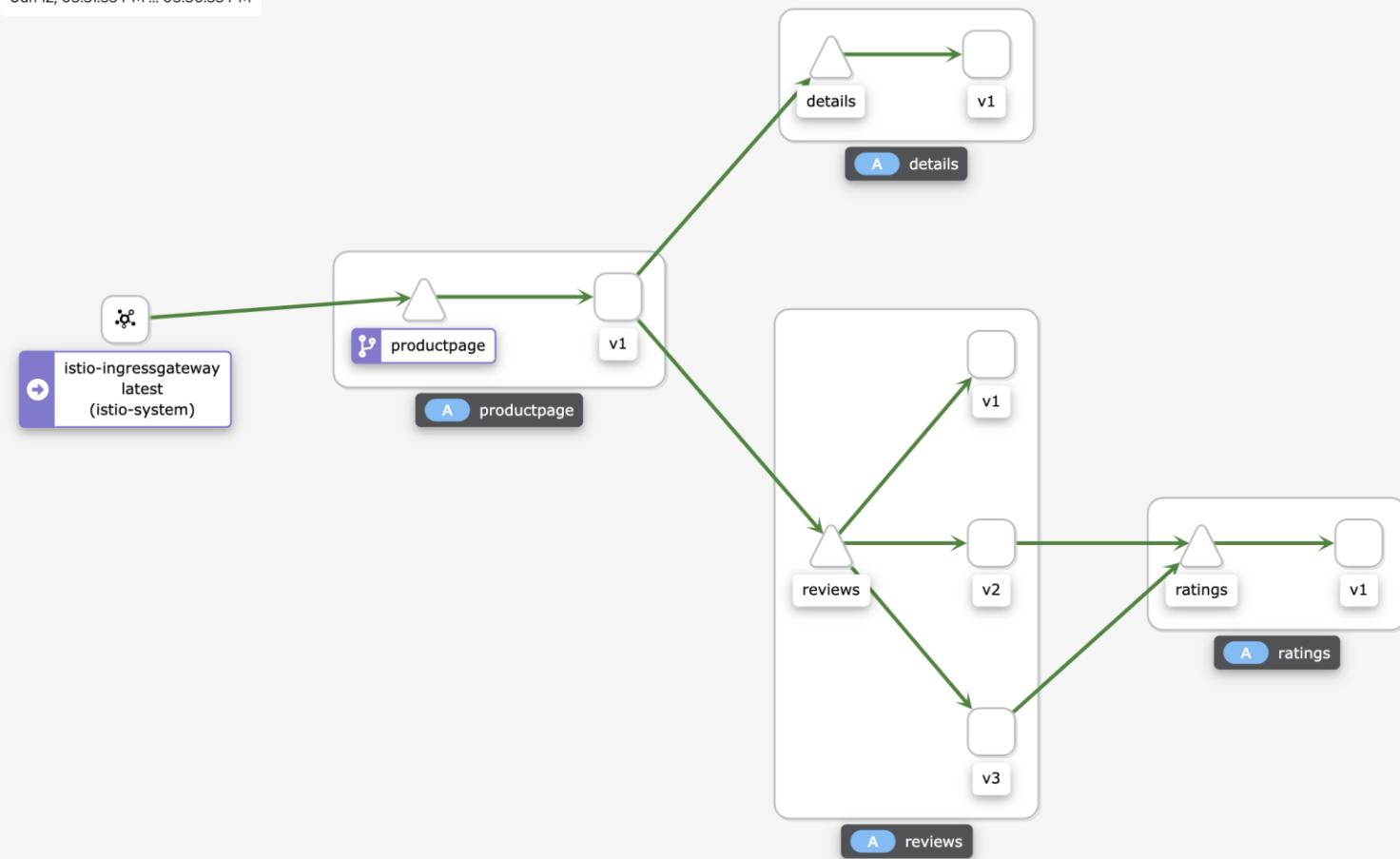
Find...

Hide...



Graph tour

Jun 12, 05:51:55 PM ... 05:56:55 PM



Current Graph:

NS default ✓

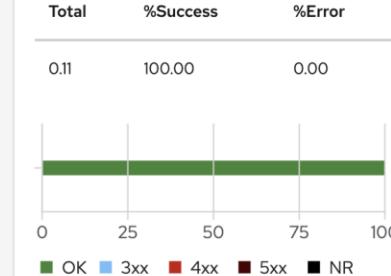
- 5 apps (7 versions)
- 4 services
- 11 edges

Inbound

Outbound

Total

HTTP (requests per second):



```
>_
```

```
$ kubectl delete deployments/productpage-v1
deployment.apps "productpage-v1" deleted
```

Overview

Namespace: default

Workload graph

Last 1m

Every 15s

**Graph**

Applications

Workloads

Services

Istio Config

Display

Find...

Hide...



Graph tour

Jun 12, 06:10:27 PM ... 06:11:27 PM

Current Graph:

NS default ✓

1 service

1 workload

1 edge

Inbound

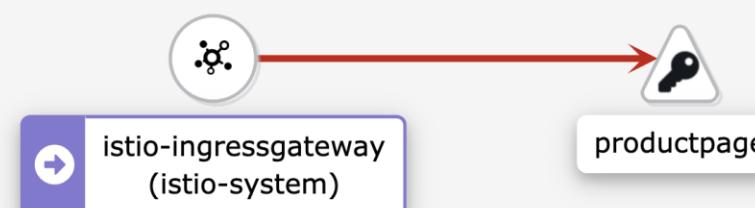
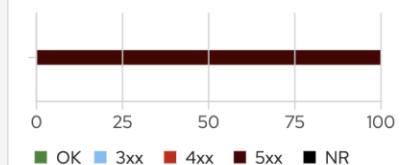
Outbound

Total

HTTP (requests per second):

Total %Success %Error

0.98 0.00 100.00



Legend



{KODE}{CLOUD}

# TRAFFIC MANAGEMENT



# Traffic Management

Gateways

Virtual Services

Destination Rules

Subsets

Timeouts

Retries

Circuit Breaking

Fault Injection

Request Routing

A/B Testing

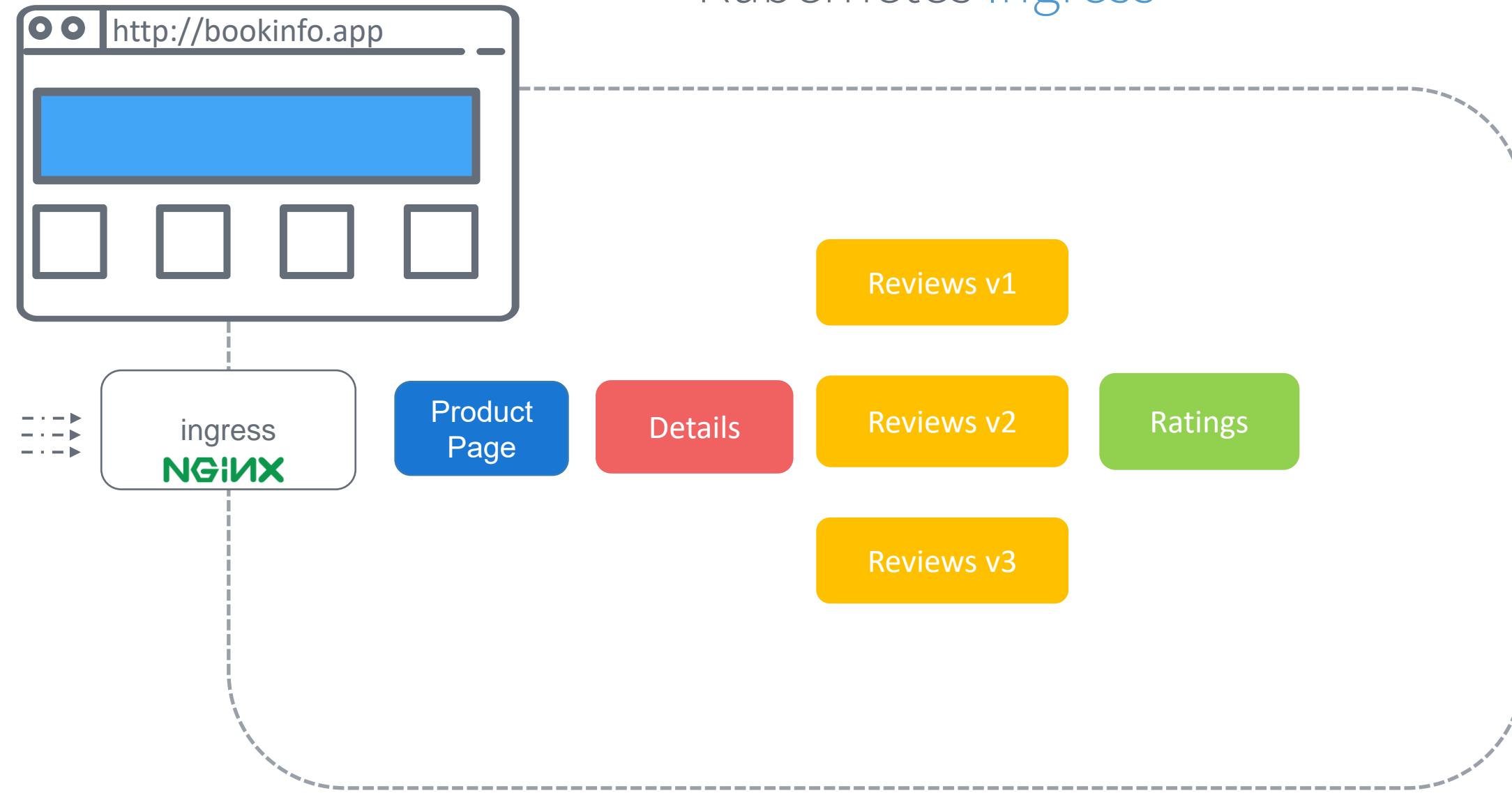


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# GATEWAYS



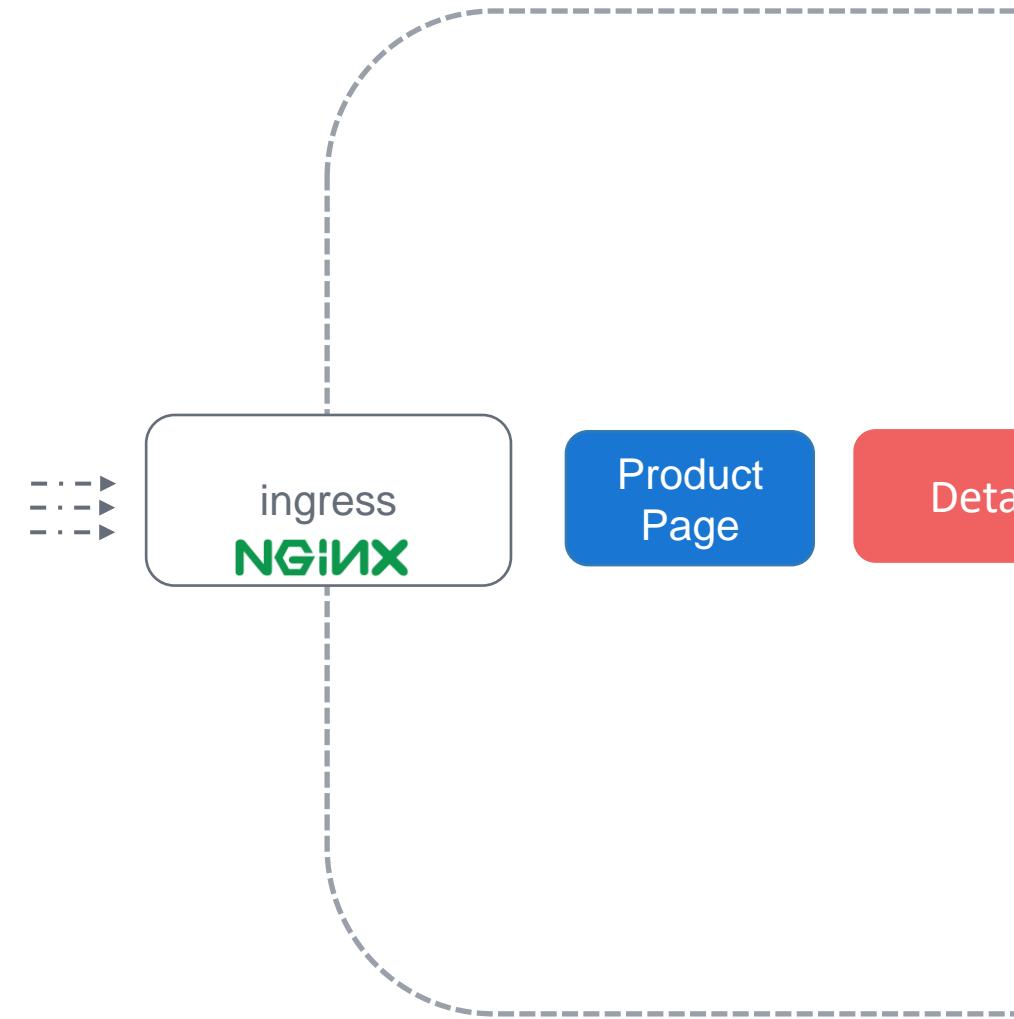
# Kubernetes Ingress



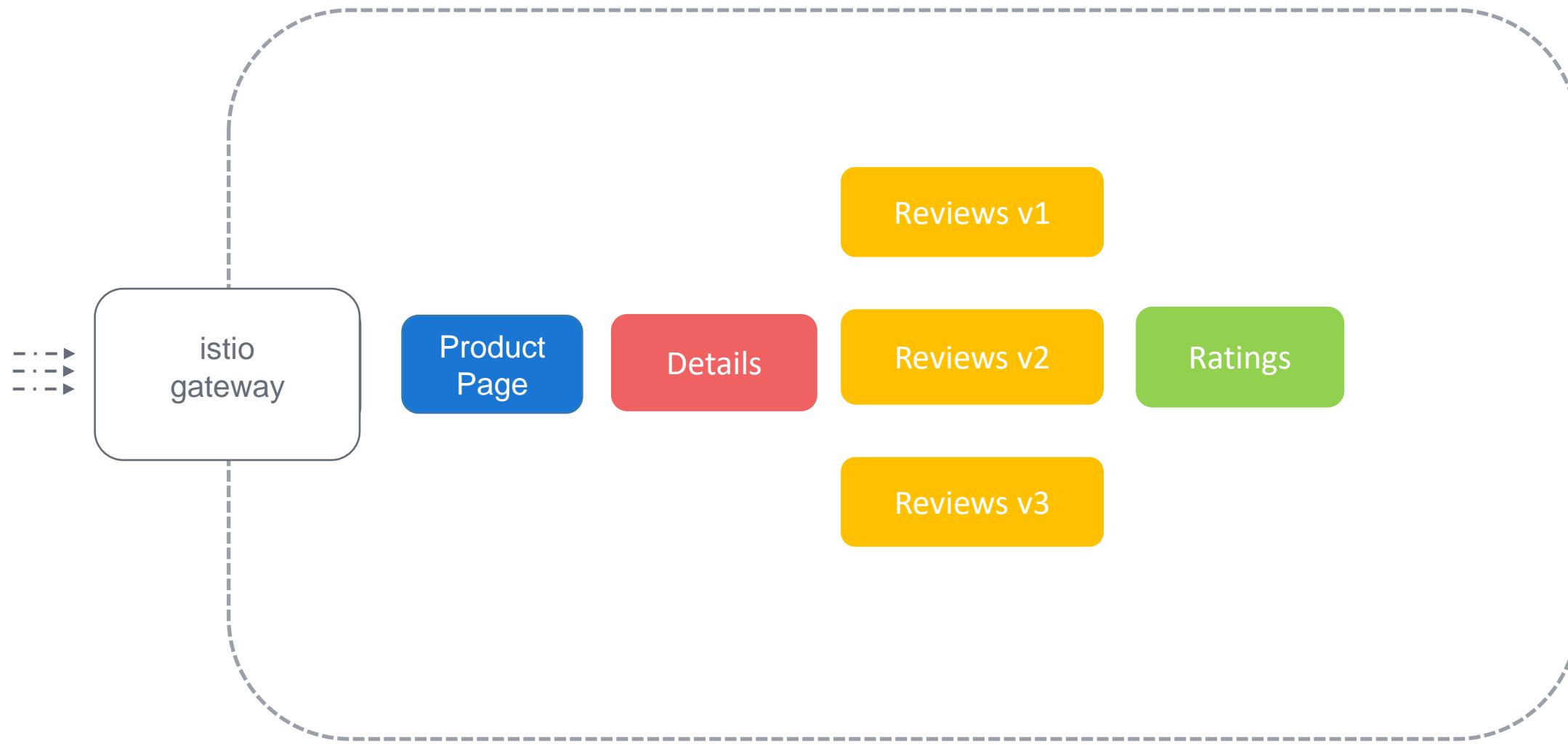
# Kubernetes Ingress

bookinfo-ingress.yaml

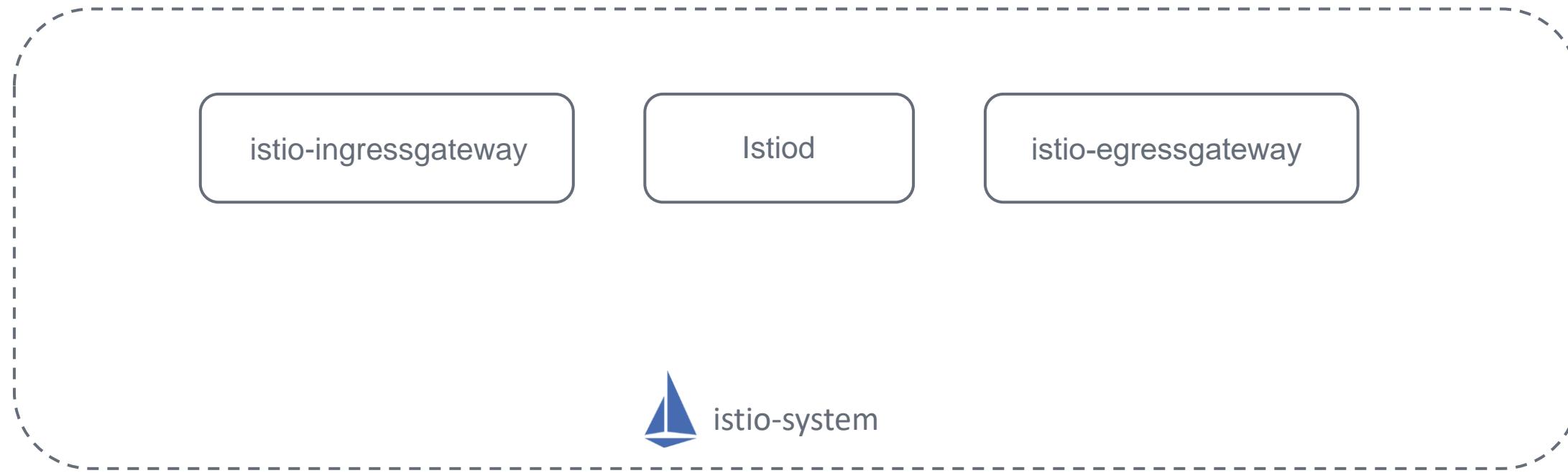
```
apiVersion: networking.k8s.io/v1beta1
kind: Ingress
metadata:
  name: ingress
spec:
  rules:
  - host: bookinfo.app
    http:
      paths:
      - path: /
        backend:
          serviceName: productpage
          servicePort: 8000
```



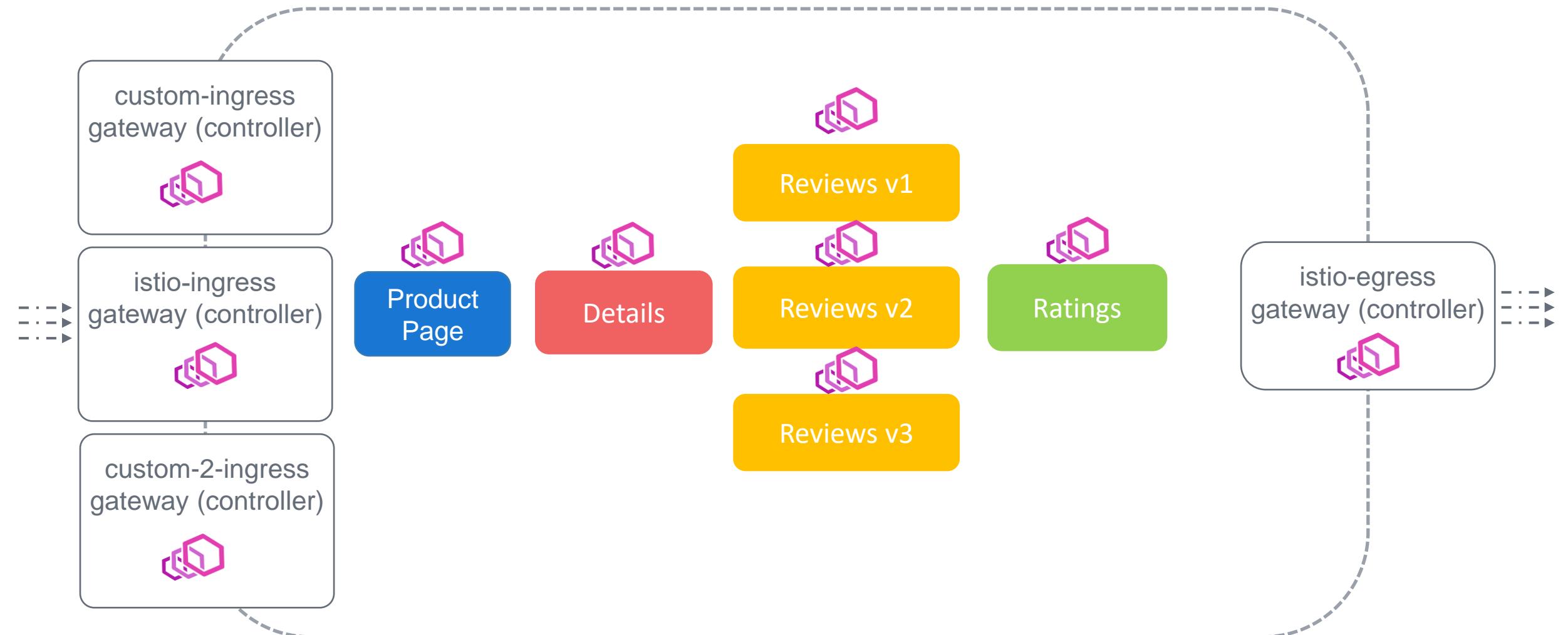
# Istio Gateway



# Istio Gateway



# Istio Gateway



# Istio Gateway

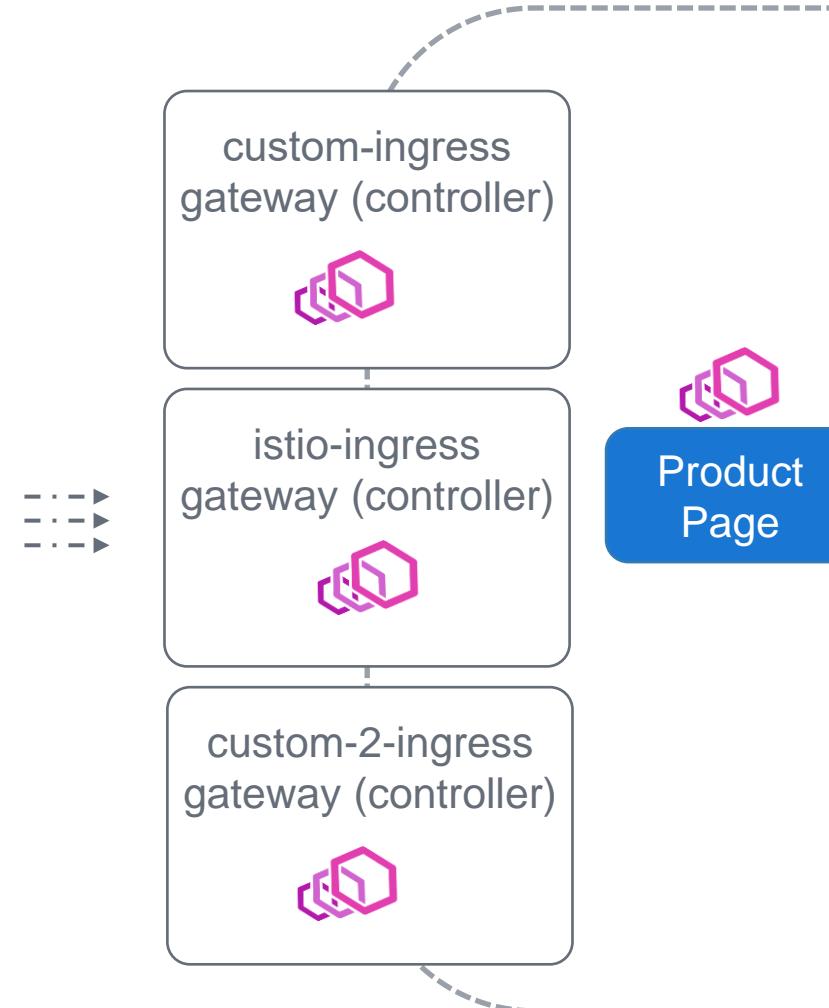
bookinfo-gateway.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: Gateway
metadata:
  name: bookinfo-gateway
spec:
  selector:
    istio: ingressgateway
  servers:
  - port:
      number: 80
      name: http
      protocol: HTTP
  hosts:
  - "bookinfo.app"
```

>\_

```
$ kubectl apply -f bookinfo-gateway.yaml
gateway.networking.istio.io/bookinfo-gateway created
```

bookinfo-gateway



# Istio Gateway

```
bookinfo-gateway.yaml
```

```
apiVersion: networking.istio.io/v1alpha3
kind: Gateway
metadata:
  name: bookinfo-gateway
spec:
  selector:
    istio: ingressgateway
  servers:
  - port:
      number: 80
      name: http
      protocol: HTTP
    hosts:
    - "bookinfo.app"
```

```
>_
```

```
$ kubectl apply -f bookinfo-gateway.yaml
gateway.networking.istio.io/bookinfo-gateway created
```

```
>_
```

```
$ kubectl get gateway
```

NAME	AGE
bookinfo-gateway	9d

```
$ kubectl describe gateway bookinfo-gateway
```

Name:	bookinfo-gateway
Namespace:	default
Labels:	<none>
Annotations:	API Version: networking.istio.io/v1beta1
Kind:	Gateway
...	
Spec:	
Selector:	Istio: ingressgateway
Servers:	
Hosts:	*
Port:	
Name:	http
Number:	80
Protocol:	HTTP
Events:	<none>

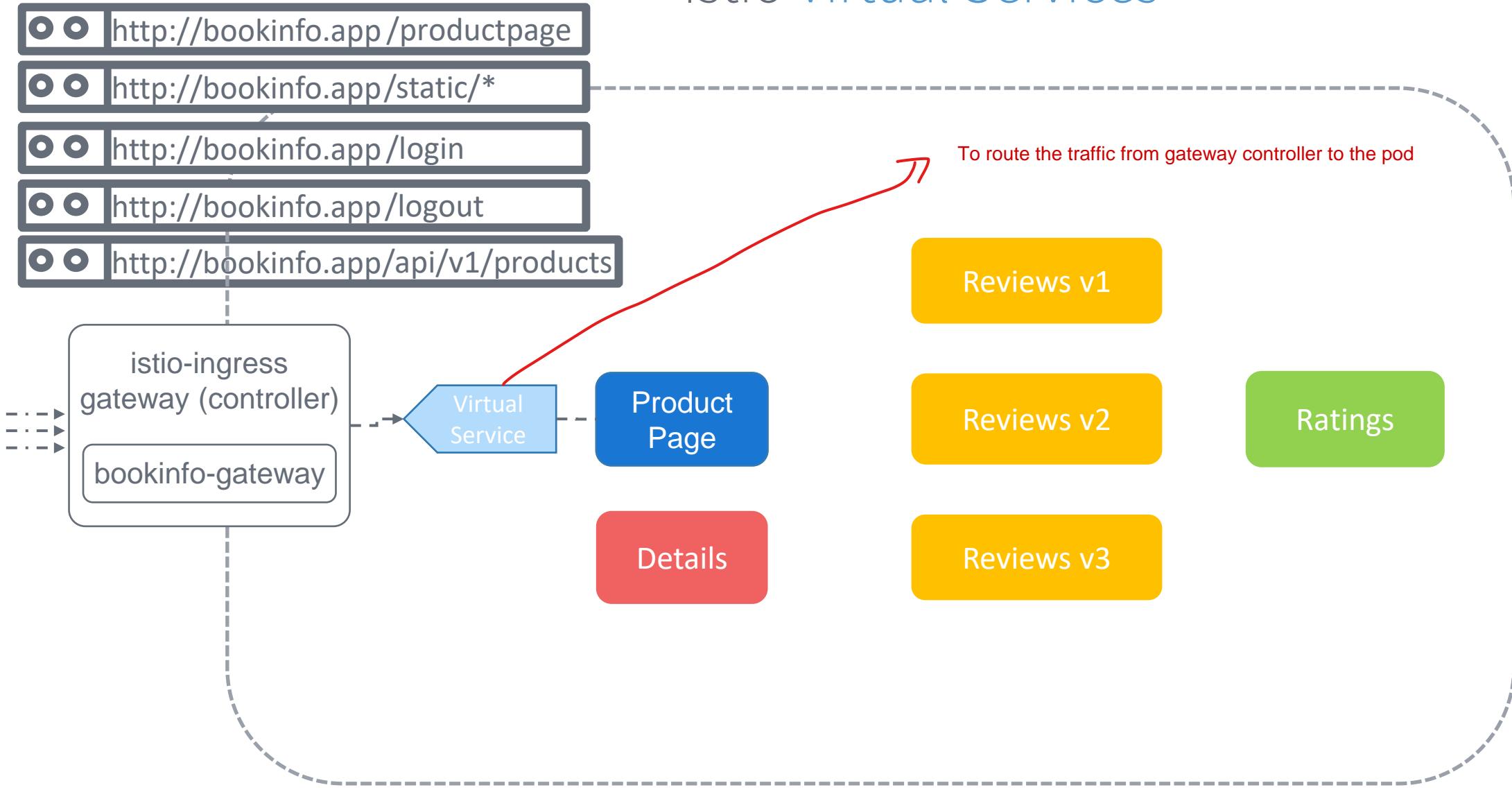


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# VIRTUAL SERVICES



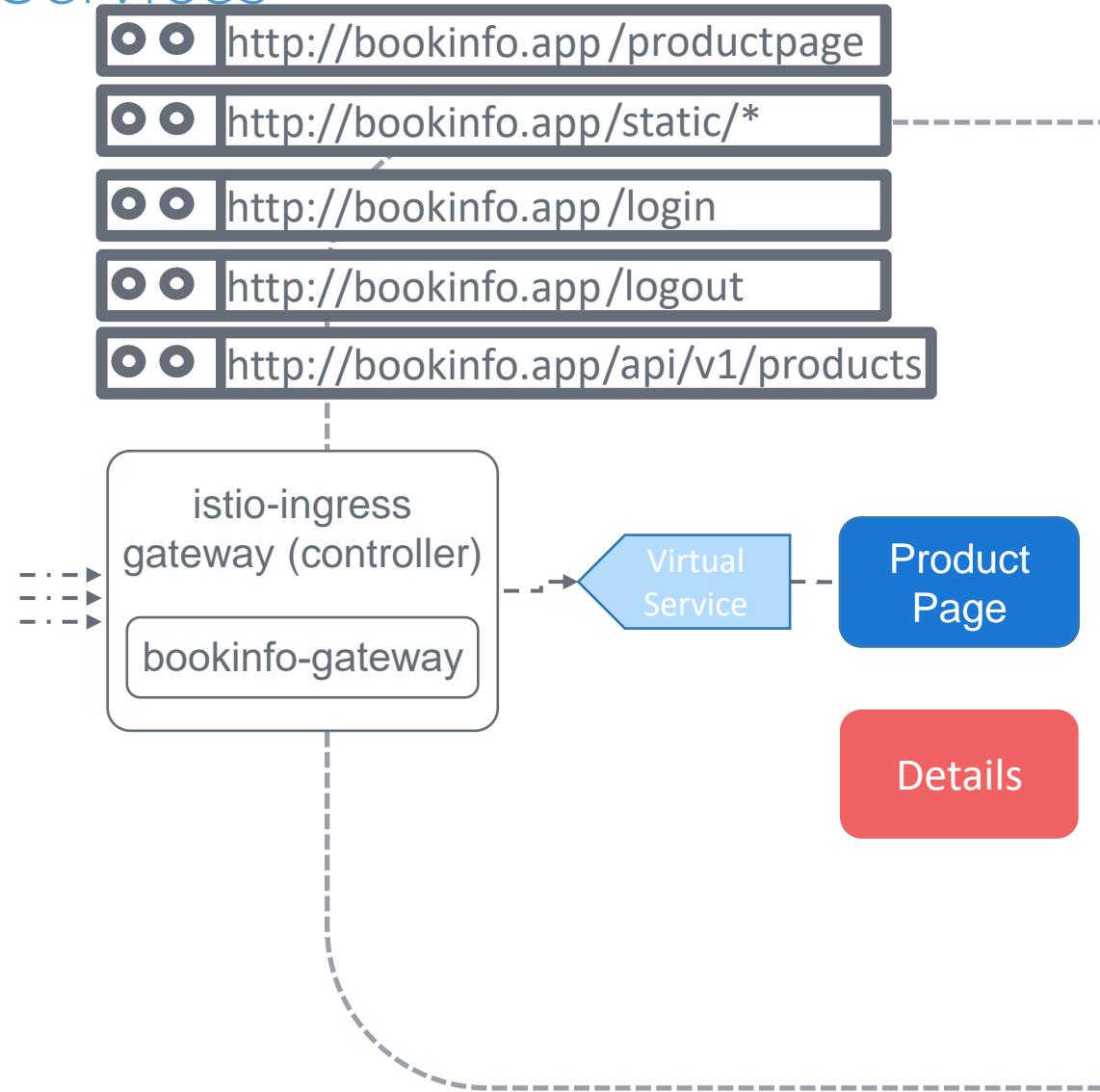
# Istio Virtual Services

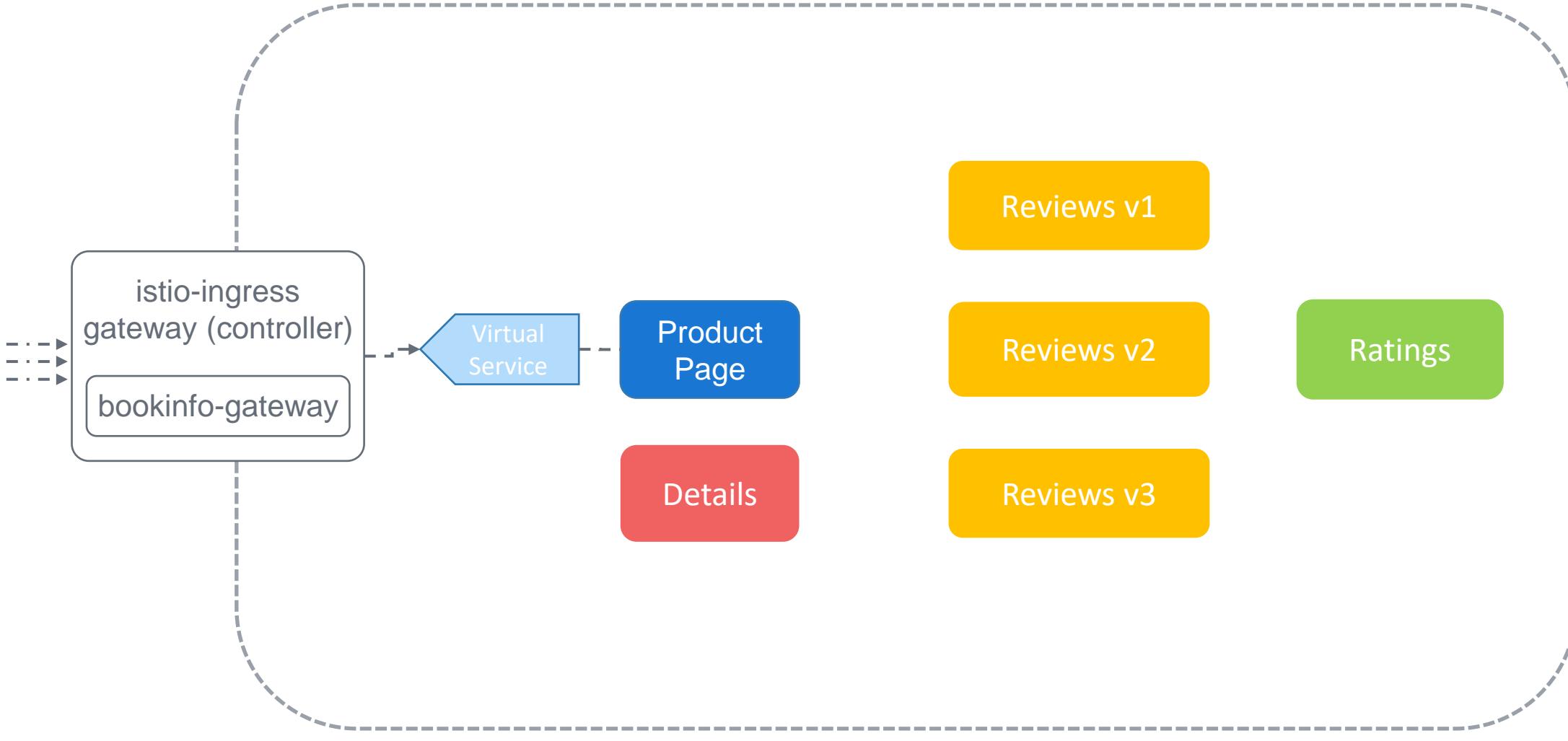


# Istio Virtual Services

## virtual-service1.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: bookinfo
spec:
  hosts:
    - "bookinfo.app"
  gateways:
    - bookinfo-gateway
  http:
    - match:
        - uri:
            exact: /productpage
        - uri:
            prefix: /static
        - uri:
            exact: /login
        - uri:
            exact: /logout
        - uri:
            prefix: /api/v1/products
    route:
      - destination:
          host: productpage
          port:
            number: 9080
```





```
graph LR; A[Product Page] --- B[Reviews v1]; A --- C[Reviews v2]; A --- D[Reviews v3]
```

Product  
Page

Reviews v1

Reviews v2

Reviews v3

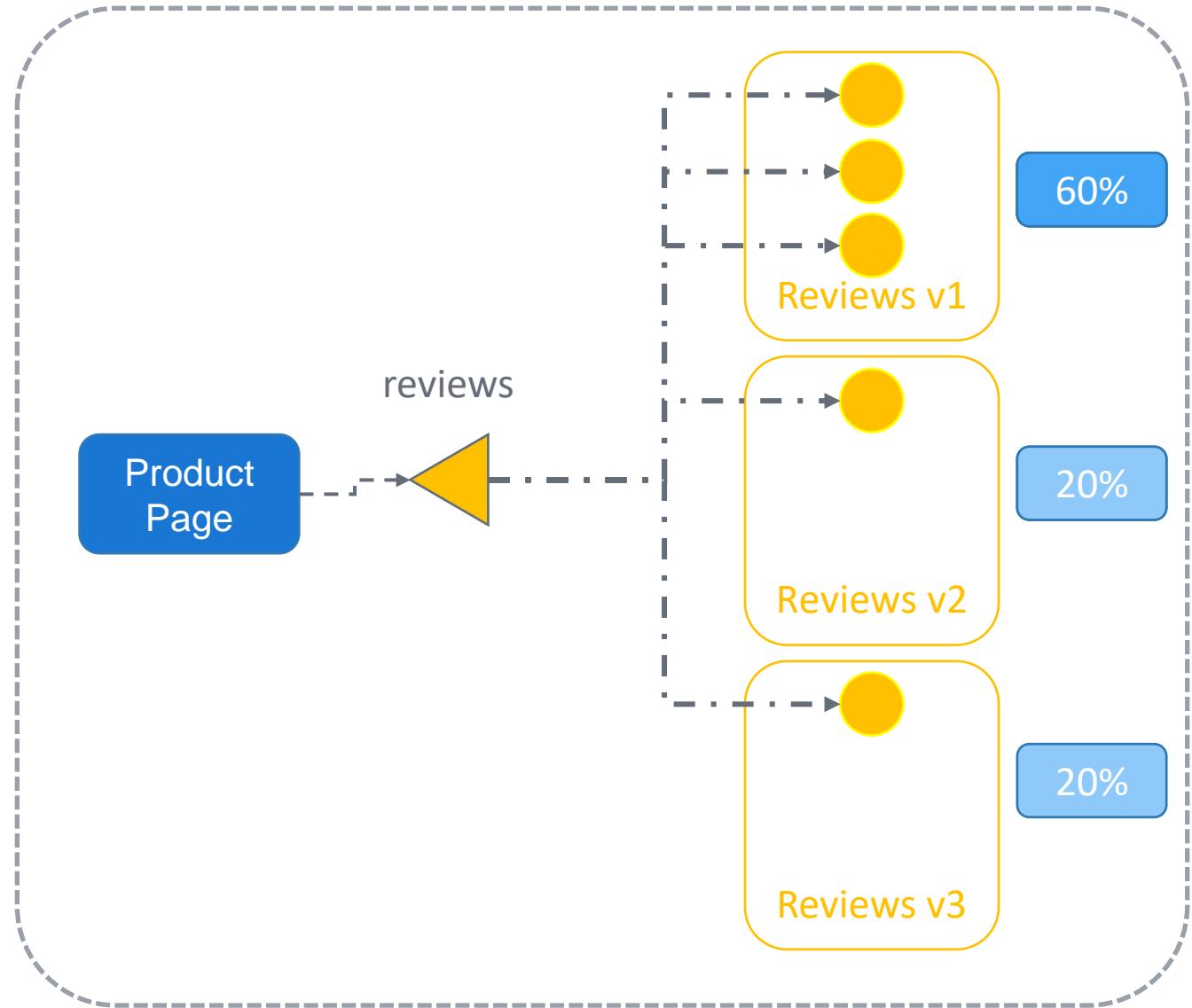
## review-v3-deployment.yaml

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: reviews-v3
spec:
  replicas: 1
  ...
  template:
    metadata:
      labels:
        app: reviews
        version: v1
```

## review-service.yaml

```
apiVersion: v1
kind: Service
metadata:
  name: reviews
spec:
  ports:
  - port: 9080
    name: http
  selector:
    app: reviews
```

Without Istio , using normal Kubernetes,  
- the traffic is distributed equally

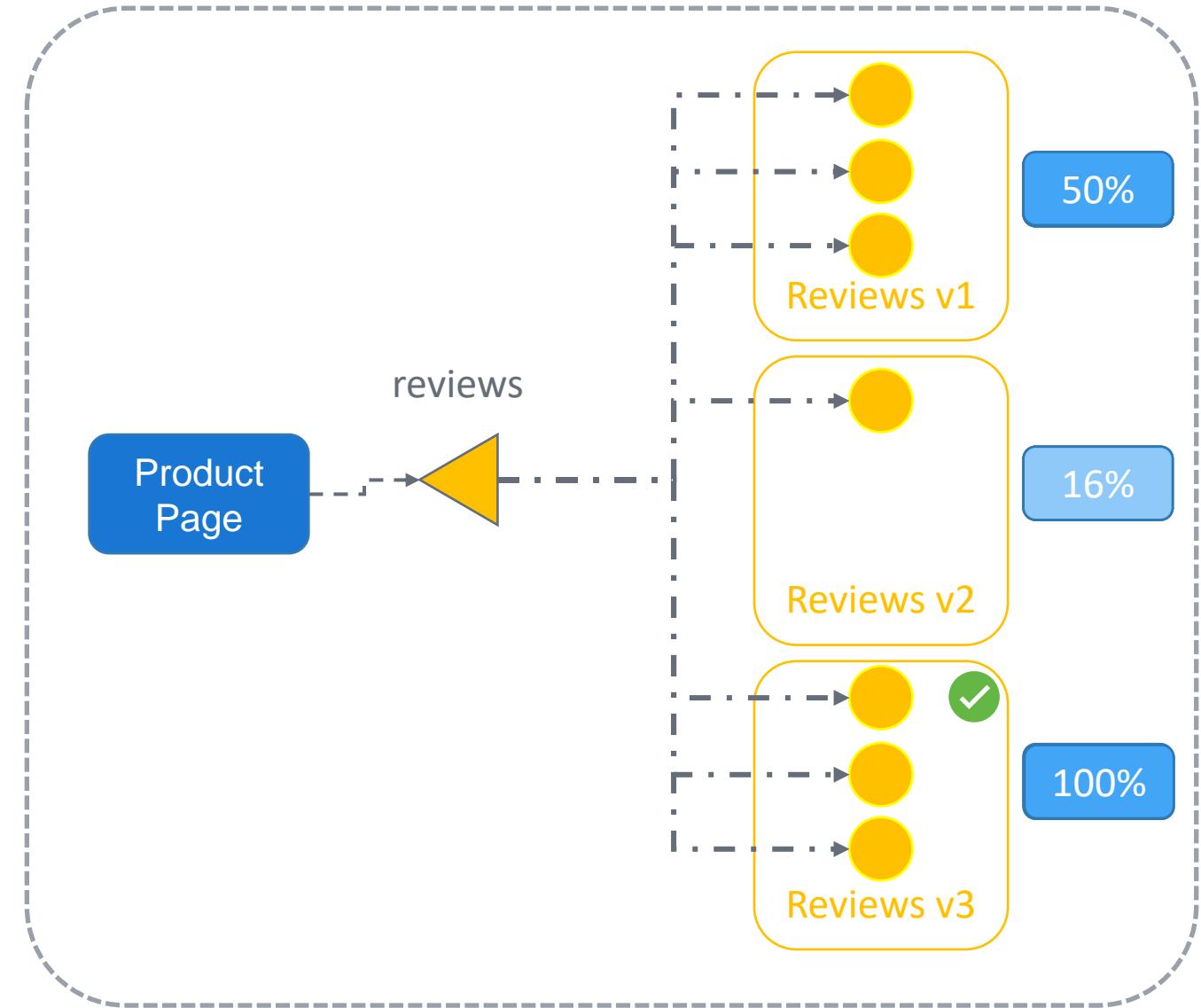


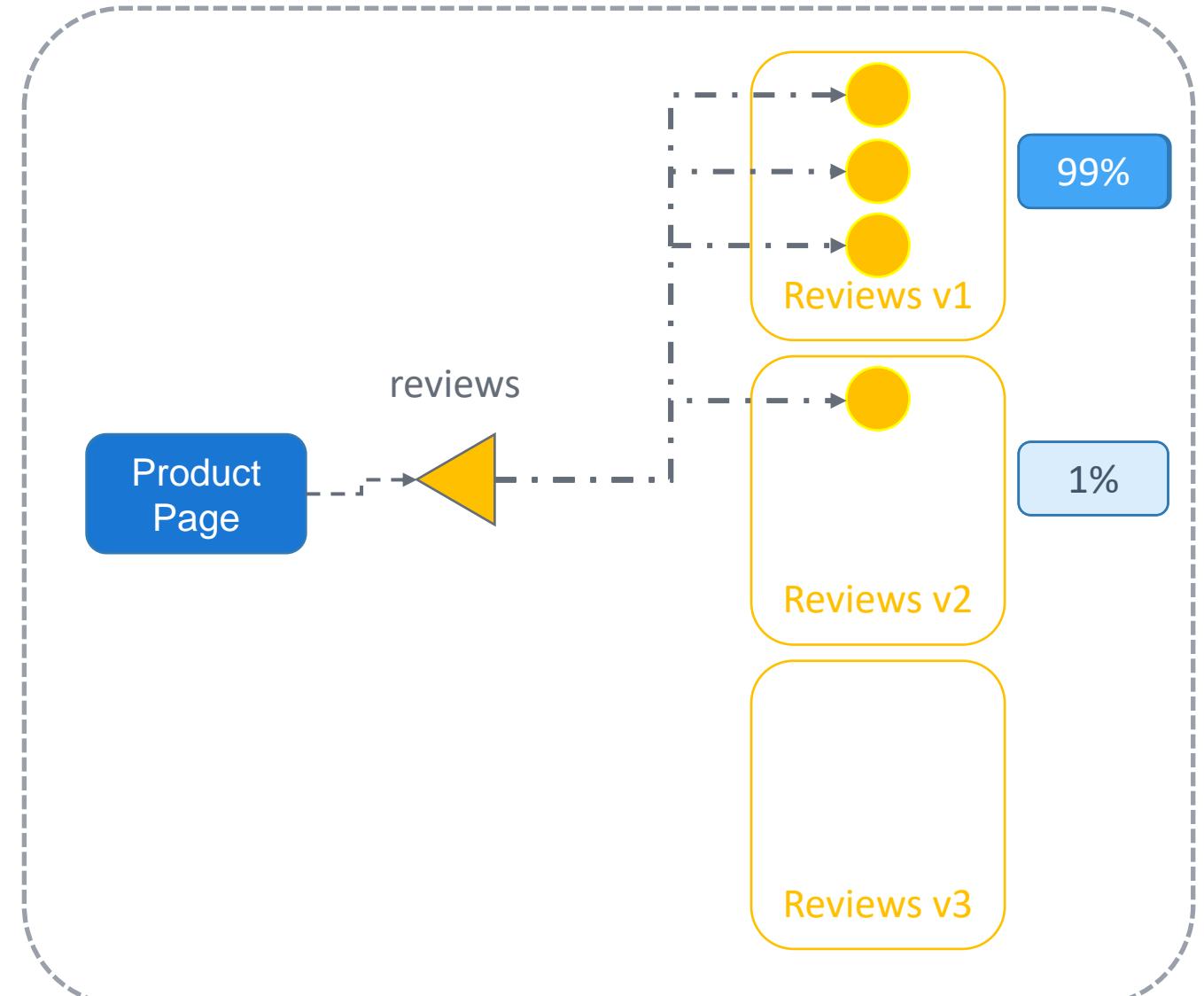
```
>_
```

```
$ kubectl scale deployment reviews-v3 --replicas=3  
deployment.apps/reviews-v3 scaled  
  
$ kubectl scale deployment reviews-v2 --replicas=0  
deployment.apps/reviews-v2 scaled  
  
$ kubectl scale deployment reviews-v1 --replicas=0  
deployment.apps/reviews-v1 scaled
```

## review-service.yaml

```
apiVersion: v1  
kind: Service  
metadata:  
  name: reviews  
spec:  
  ports:  
  - port: 9080  
    name: http  
selector:  
  [app: reviews]
```



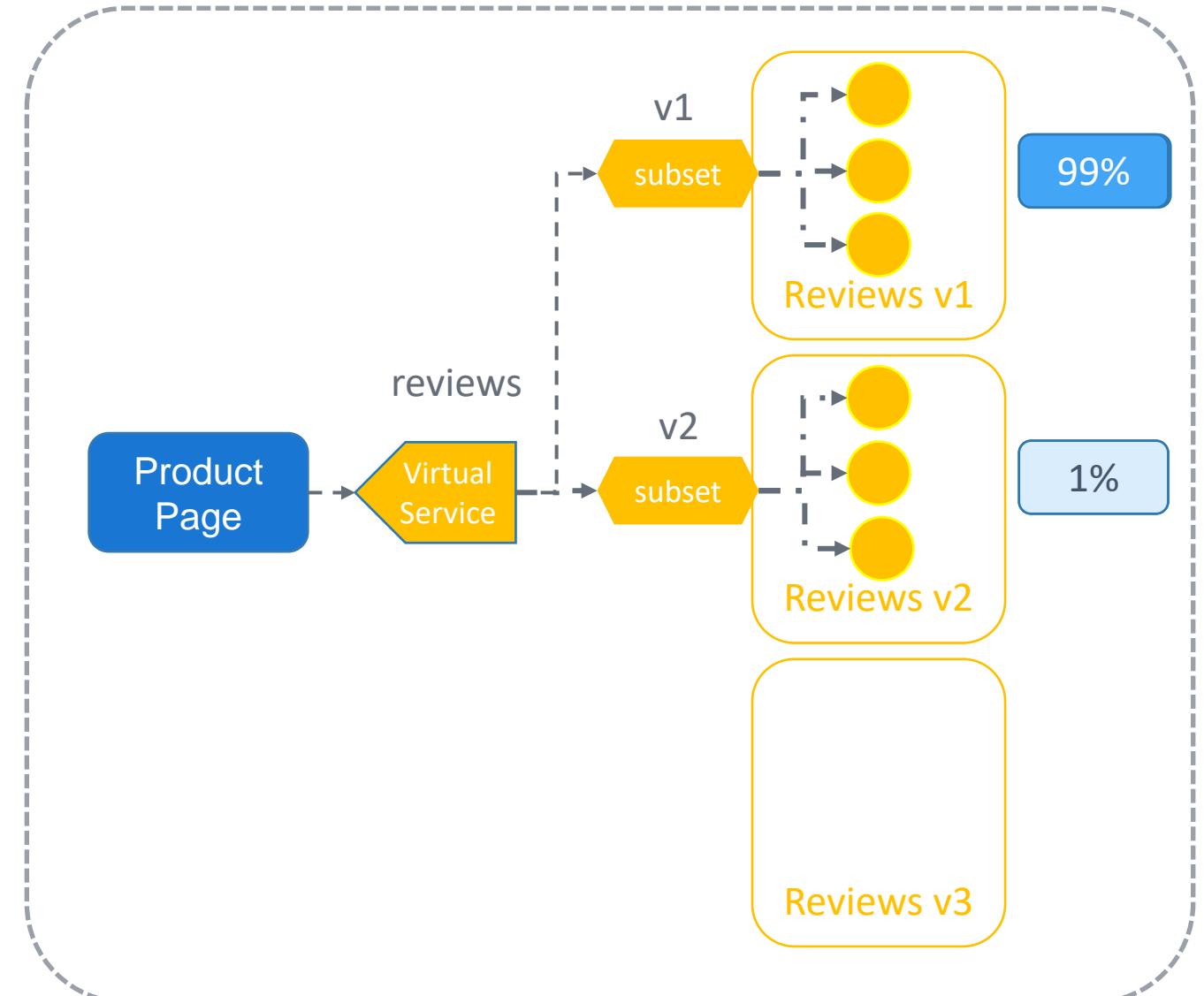


With Istio and Virtual, I can control the traffic

### review-service.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: reviews
spec:
  hosts:
    - reviews
  http:
    - route:
        - destination:
            host: reviews
            subset: v1
            weight: 99
        - destination:
            host: reviews
            subset: v2
            weight: 1
```

Subsets are defined in the destination rules





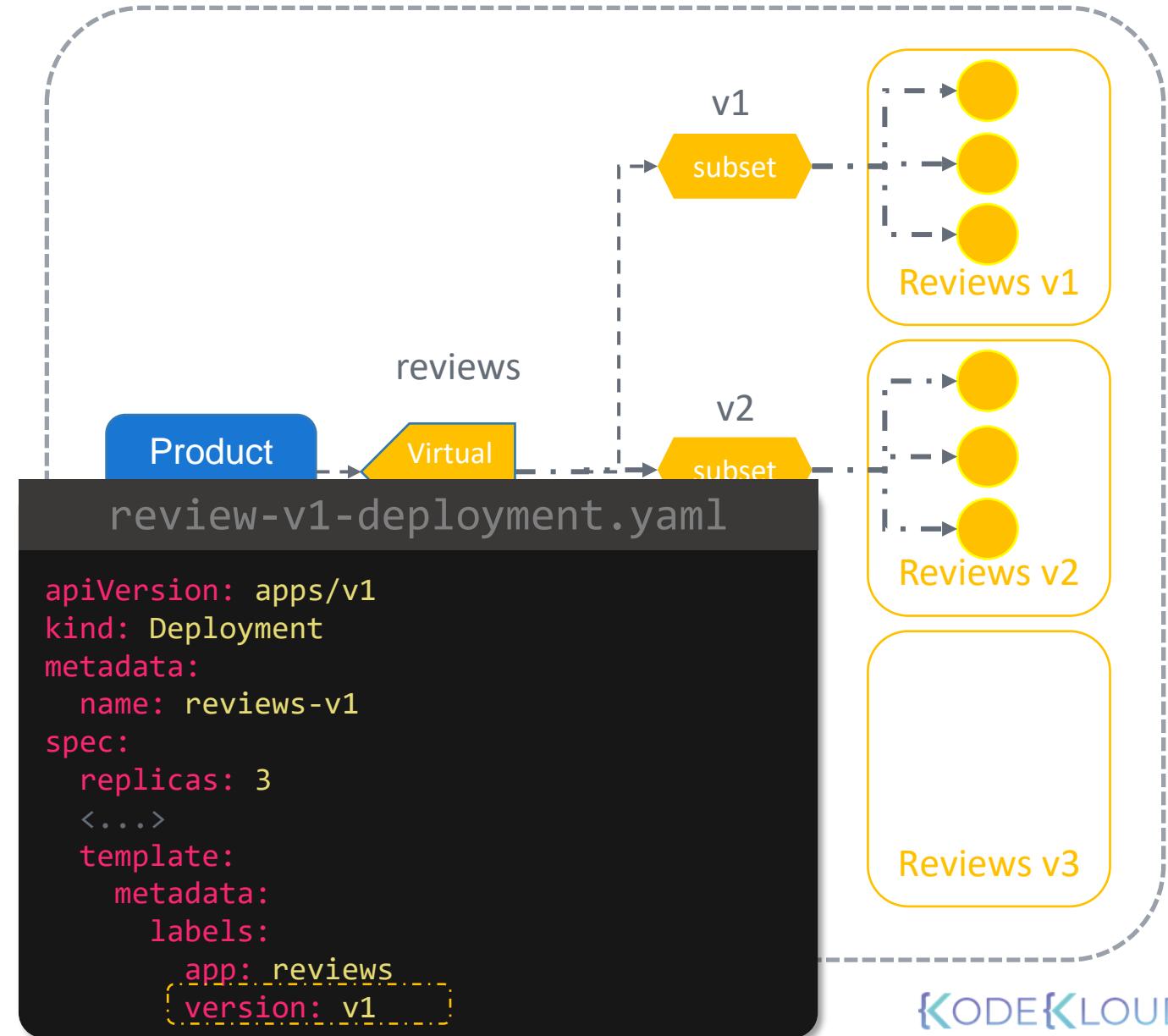
{KODE}{CLOUD}

# DESTINATION RULES



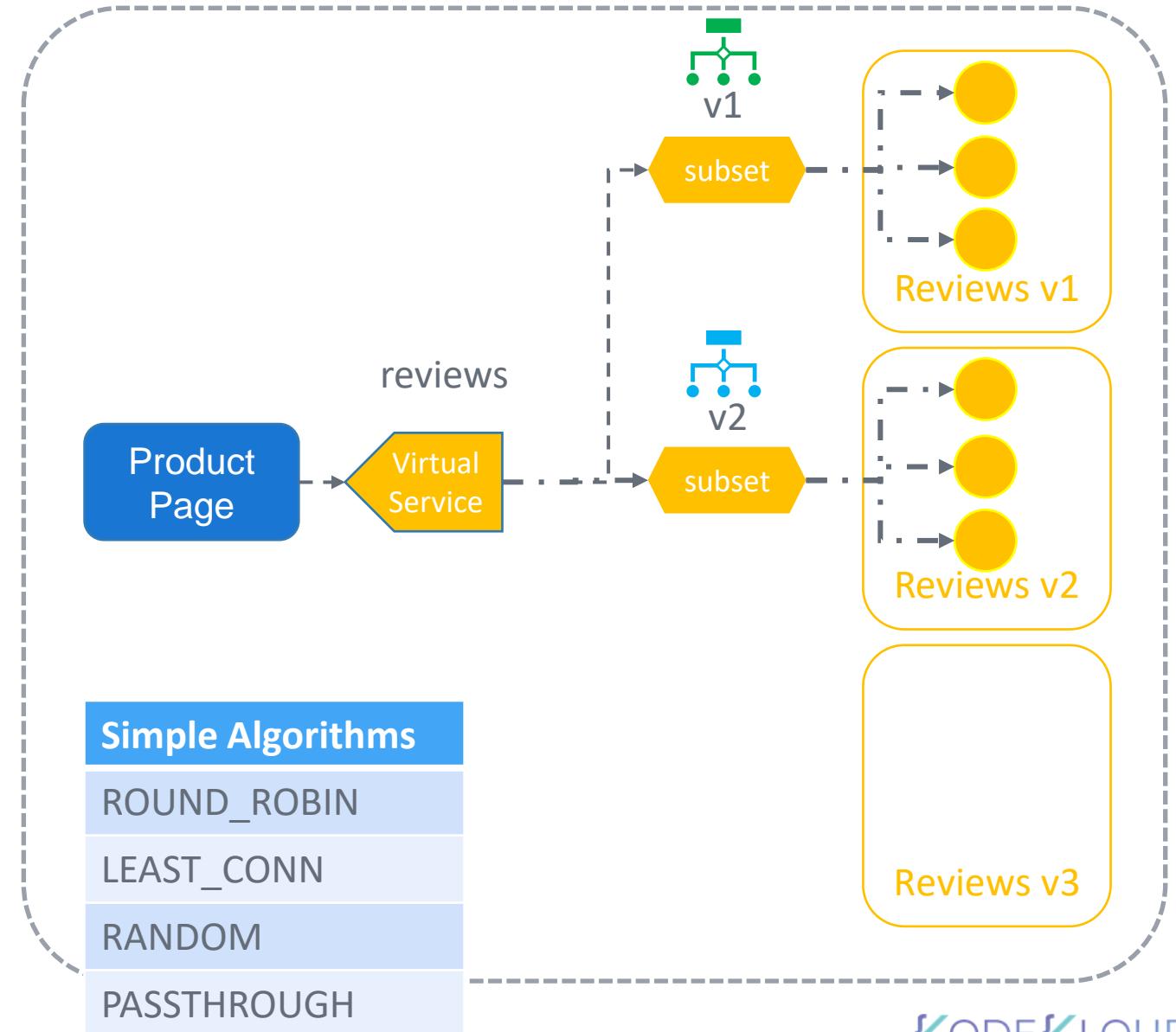
## review-destination.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: DestinationRule
metadata:
  name: reviews-destination
spec:
  host: reviews
  subsets:
    - name: v1
      labels:
        [version: v1]
    - name: v2
      labels:
        version: v2
```



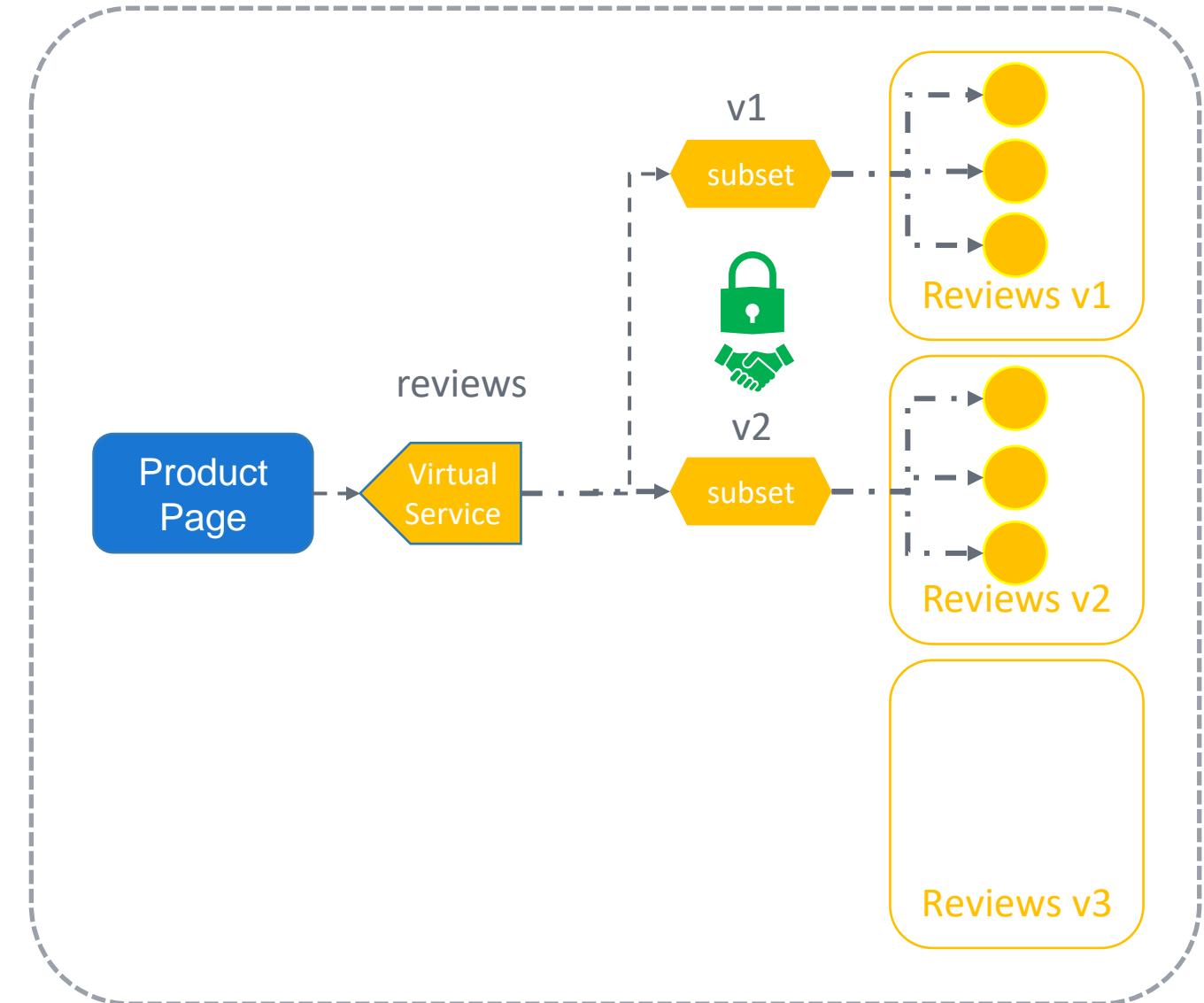
## review-destination.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: DestinationRule
metadata:
  name: reviews-destination
spec:
  host: reviews
  trafficPolicy:
    loadBalancer:
      simple: PASSTHROUGH
  subsets:
    - name: v1
      labels:
        version: v1
    - name: v2
      labels:
        version: v2
      trafficPolicy:
        loadBalancer:
          simple: RANDOM
```



## review-destination.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: DestinationRule
metadata:
  name: reviews-destination
spec:
  host: reviews.default.svc.cluster.local
  trafficPolicy:
    tls:
      mode: MUTUAL
      clientCertificate: /myclientcert.pem
      privateKey: /client_private_key.pem
      caCertificates: /rootcacerts.pem
```



# An Example With Fully Qualified Domain Names

```
virtual-service.yaml
```

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: productpage
  namespace: default
spec:
  hosts:
    - productpage.prod.svc.cluster.local
  http:
    - timeout: 5s
    route:
      - destination:
          host: productpage.prod.svc.cluster.local
```

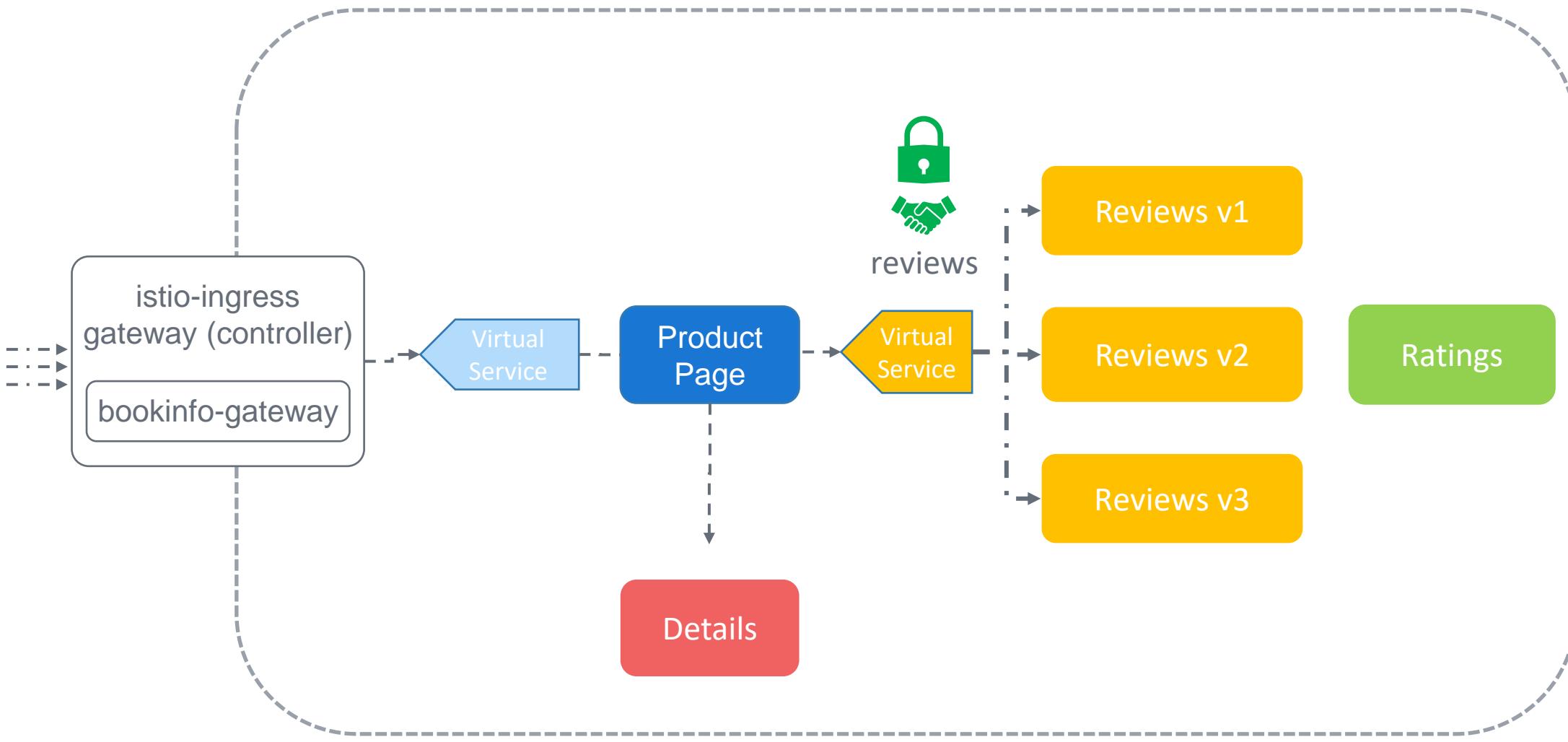


{KODE}{CLOUD}

# FAULT INJECTION



# Istio Virtual Services



## fault-injection.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: my-service
spec:
  hosts:
  - my-service
  http:
  - fault:
      delay:
        percentage:
          value: 0.1
        fixedDelay: 5s
    route:
    - destination:
        host: my-service
        subset: v1
```



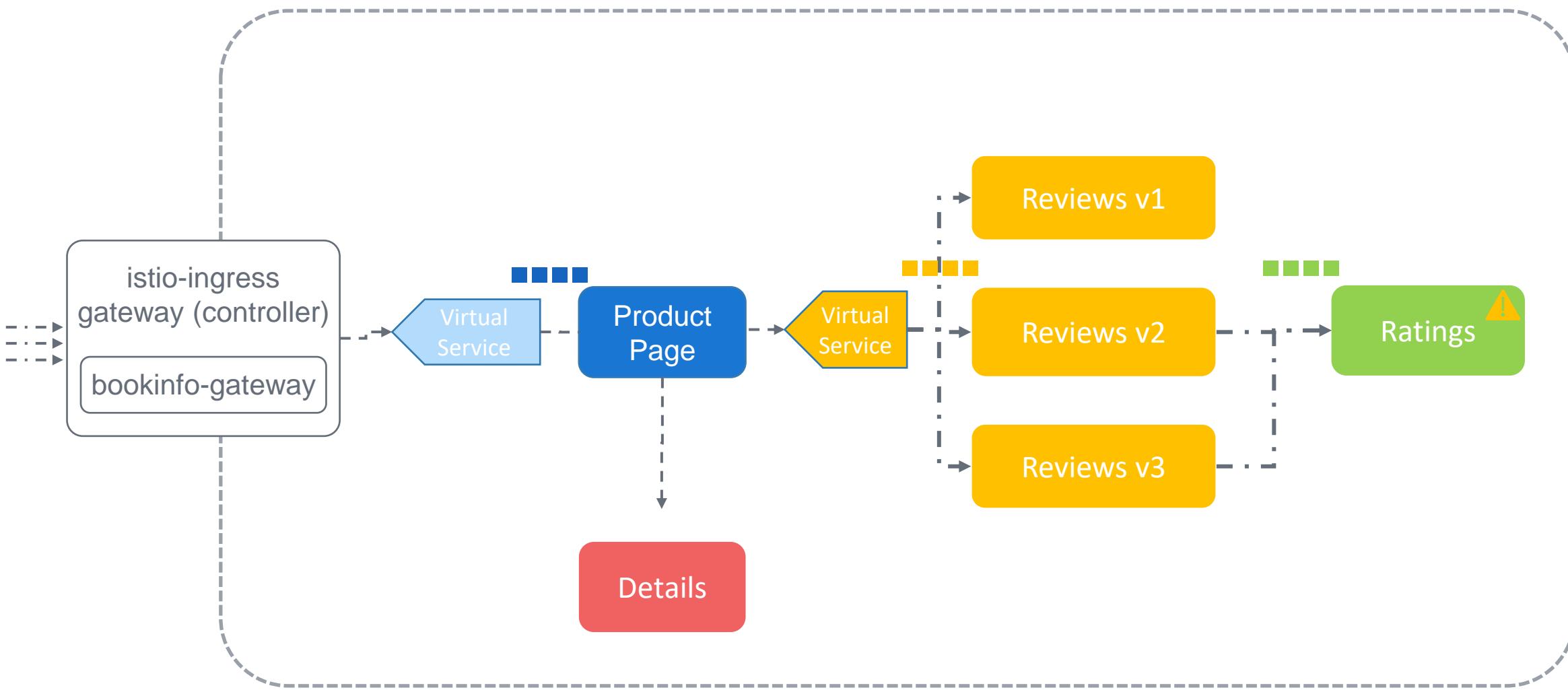
```
    abort:
      percentage:
        value: 0.1
        httpStatus: 400
```



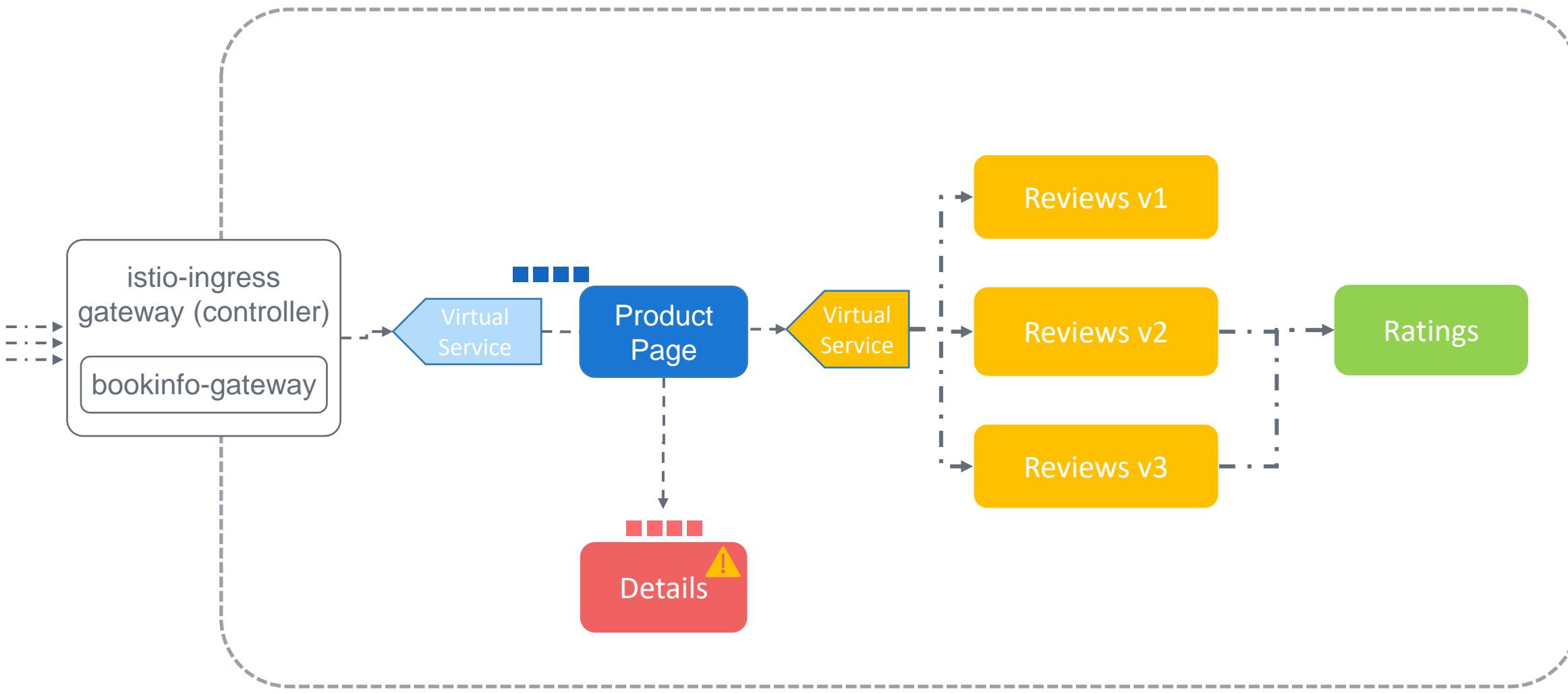
{KODE}{CLOUD}

# TIMEOUTS





# Timeouts



## book-info.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: bookinfo
spec:
  hosts:
    - "bookinfo.app"
  gateways:
    - bookinfo-gateway
  http:
    - match:
        - uri:
            exact: /productpage
        - uri:
            prefix: /static
      <code hidden>
    route:
      - destination:
          host: productpage
          port:
            number: 9080
  timeout: 3s
```

## details-service.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: details
spec:
  hosts:
    - details
  http:
    - route:
        - destination:
            host: details
            subset: v1
  fault:
    delay:
      fixedDelay: 5s
      percent: 50
```

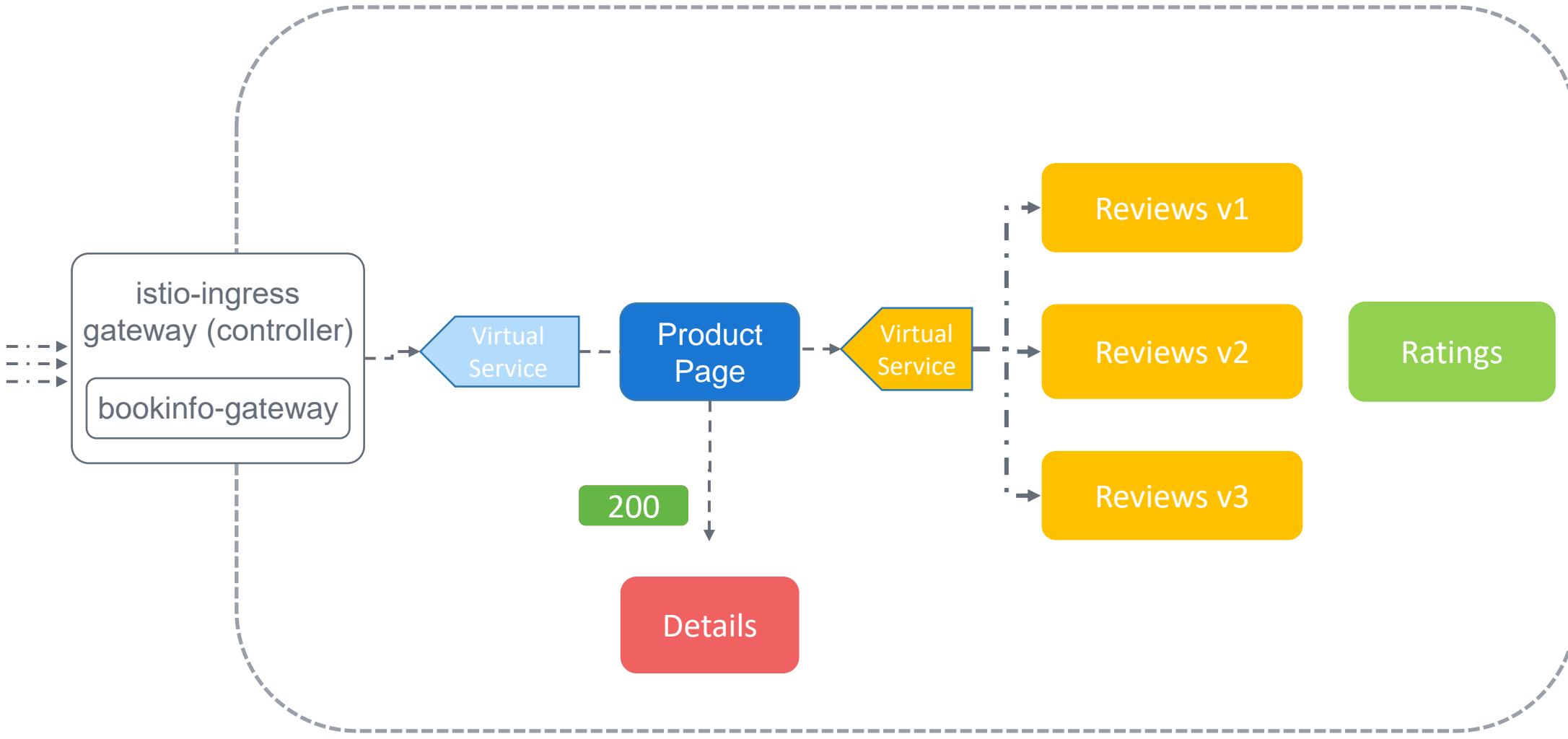


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# RETRIES



# Istio Virtual Services



## Virtual-service-timeout.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: my-service
spec:
  hosts:
    - my-service
  http:
    - route:
        - destination:
            host: my-service
            subset: v1
  retries:
    attempts: 3
    perTryTimeout: 2s
```

### ISTIO DEFAULTS

25ms+ intervals after 1st fail  
2 retries before returning an error

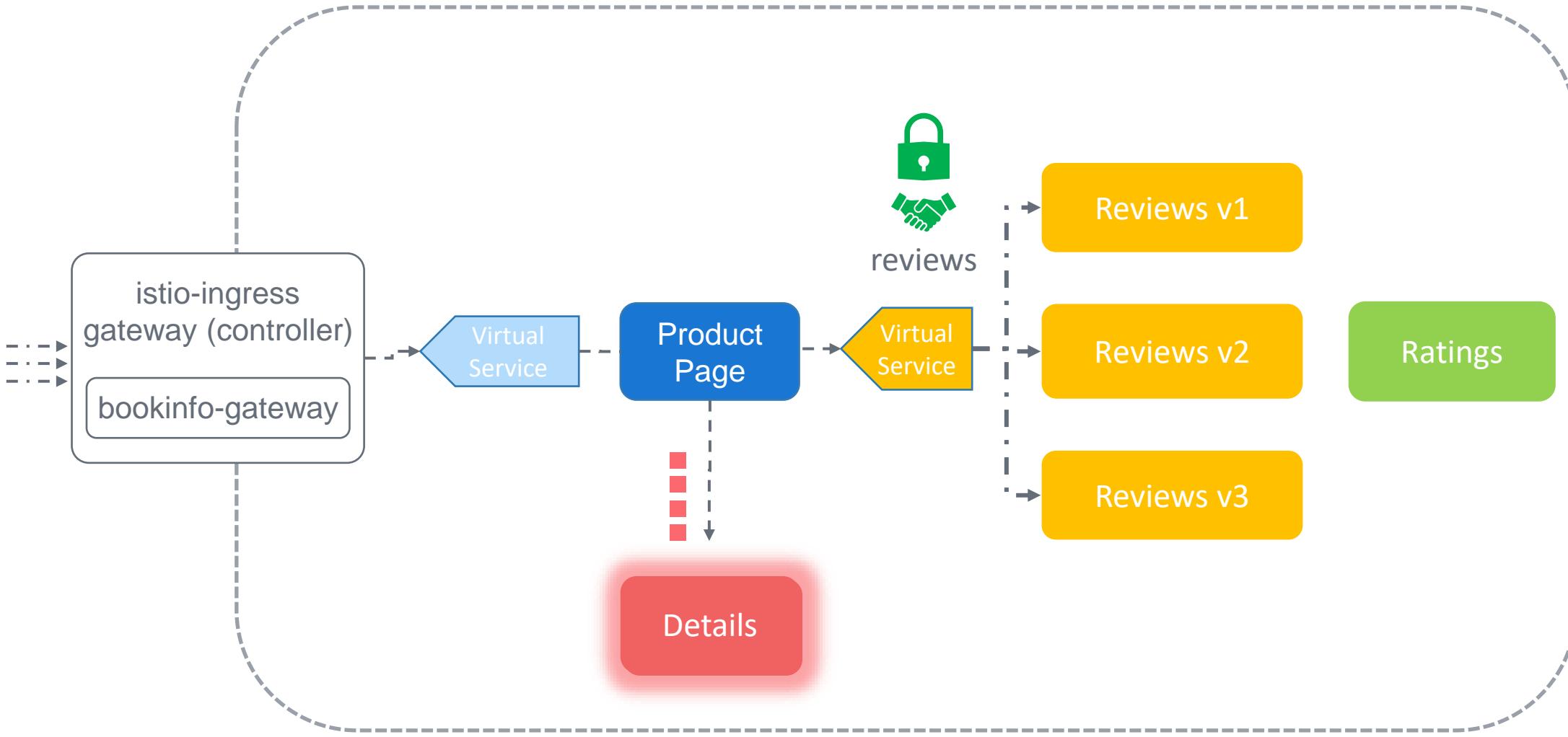


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# CIRCUIT BREAKING



# Istio Circuit Breaking



# Circuit Breaking

## circuit-breaking.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: DestinationRule
metadata:
  name: productpage
spec:
  host: productpage
  subsets:
  - name: v1
    labels:
      version: v1
  trafficPolicy:
    connectionPool:
      tcp:
        maxConnections: 3
```

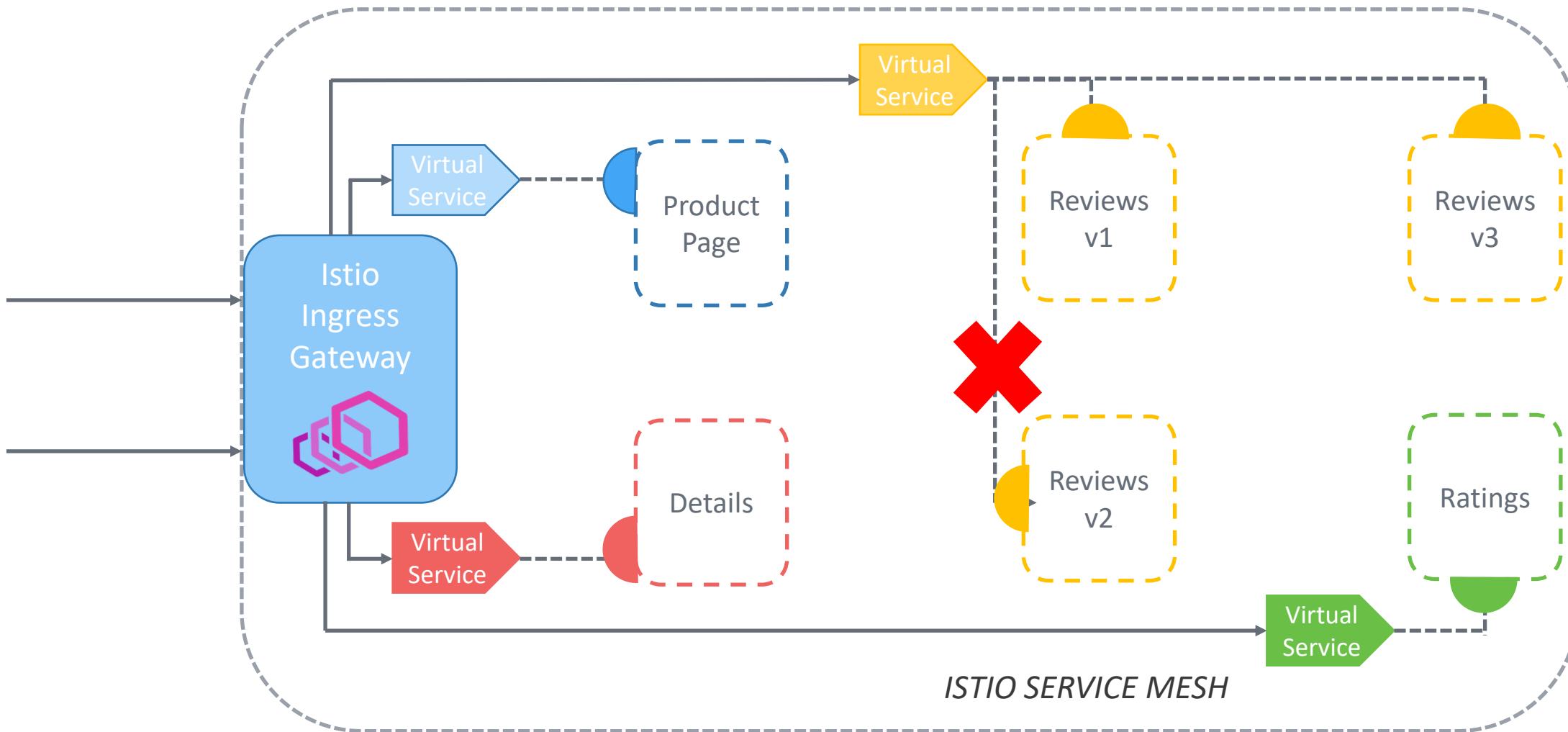


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# REQUEST ROUTING



# Request Routing



# Request Routing

## request-routing.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: reviews
spec:
  hosts:
  - reviews
  http:
  - route:
    - destination:
      host: reviews
      subset: v1
```

# Request Routing

## request-routing.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: reviews
spec:
  hosts:
  - reviews
  http:
  - route:
    - destination:
      host: reviews
      subset: v1
```

# Request Routing

## request-routing.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: reviews
spec:
  hosts:
  - reviews
  http:
  - route:
    - destination:
      host: reviews
      subset: v1
```



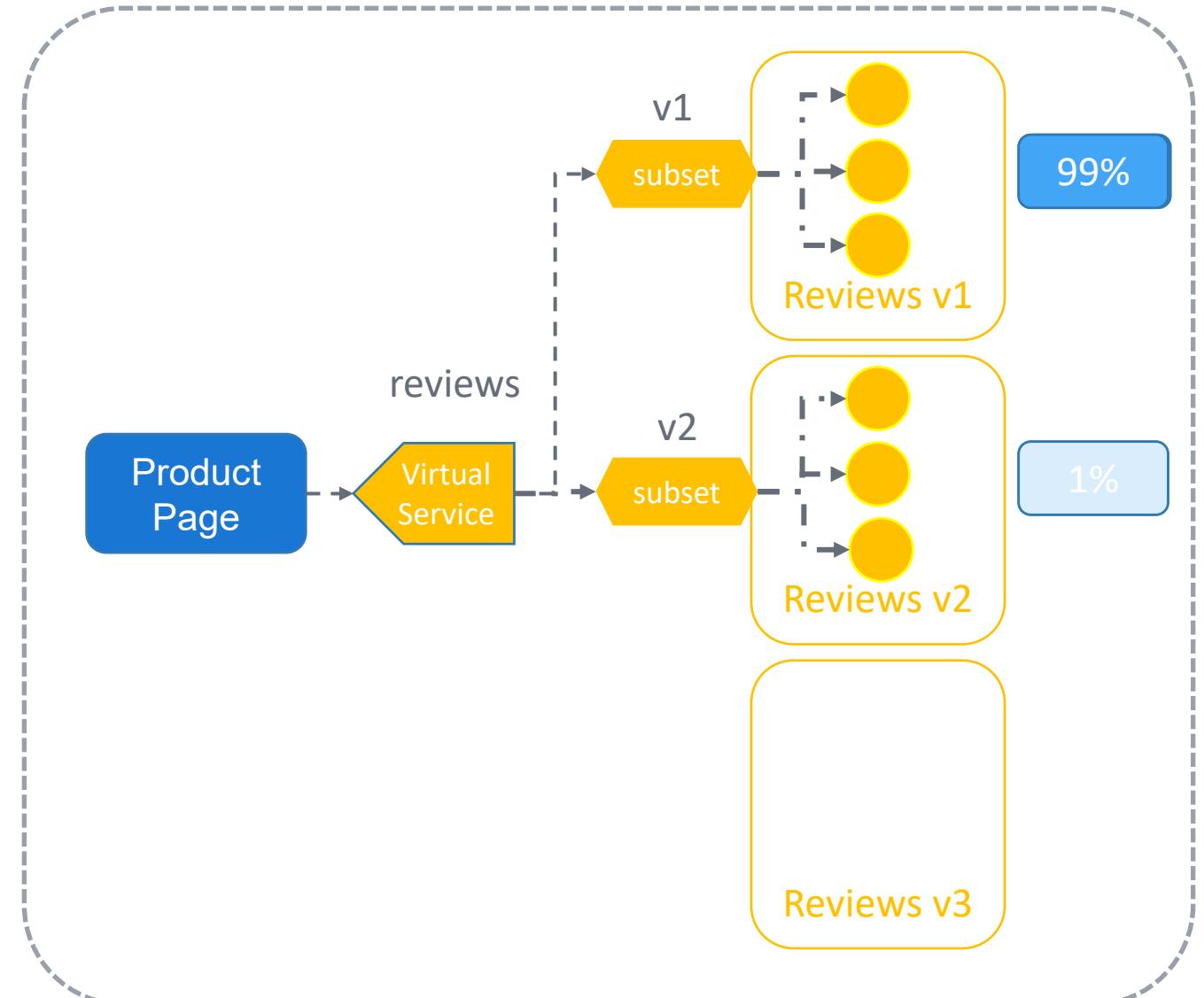
{KODE}{CLOUD}

# A/B TESTING



## review-service.yaml

```
apiVersion: networking.istio.io/v1alpha3
kind: VirtualService
metadata:
  name: reviews
spec:
  hosts:
    - reviews
  http:
    - route:
        - destination:
            host: reviews
            subset: v1
            weight: 99
        - destination:
            host: reviews
            subset: v2
            weight: 1
```





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# SECTION INTRODUCTION



# Security

Security  
In Istio

Istio Security  
Architecture

Authentication

Authorization

Mutual  
TLS

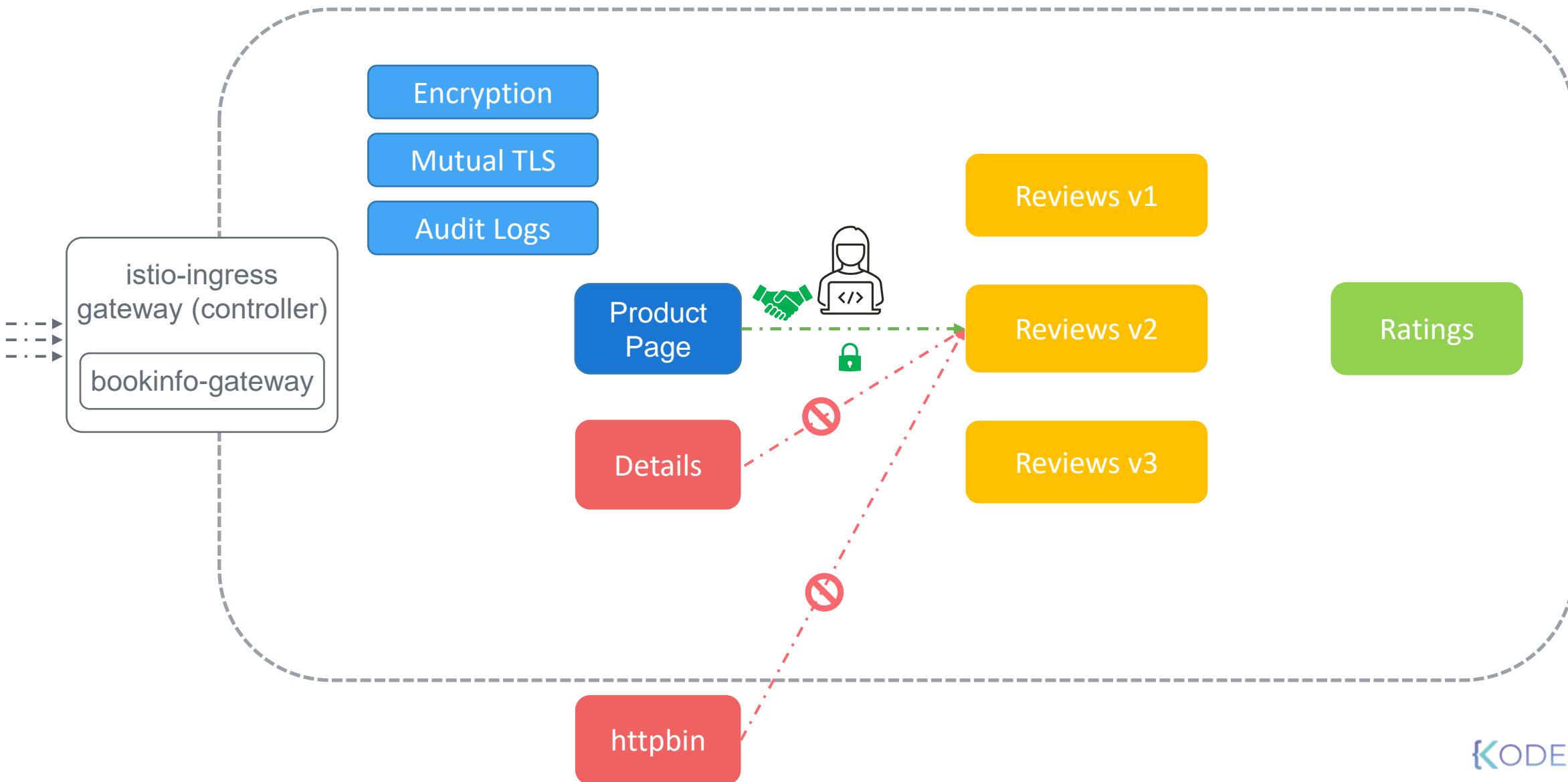
Certificate  
Management



{KODE}{CLOUD}

# SECURITY IN ISTIO





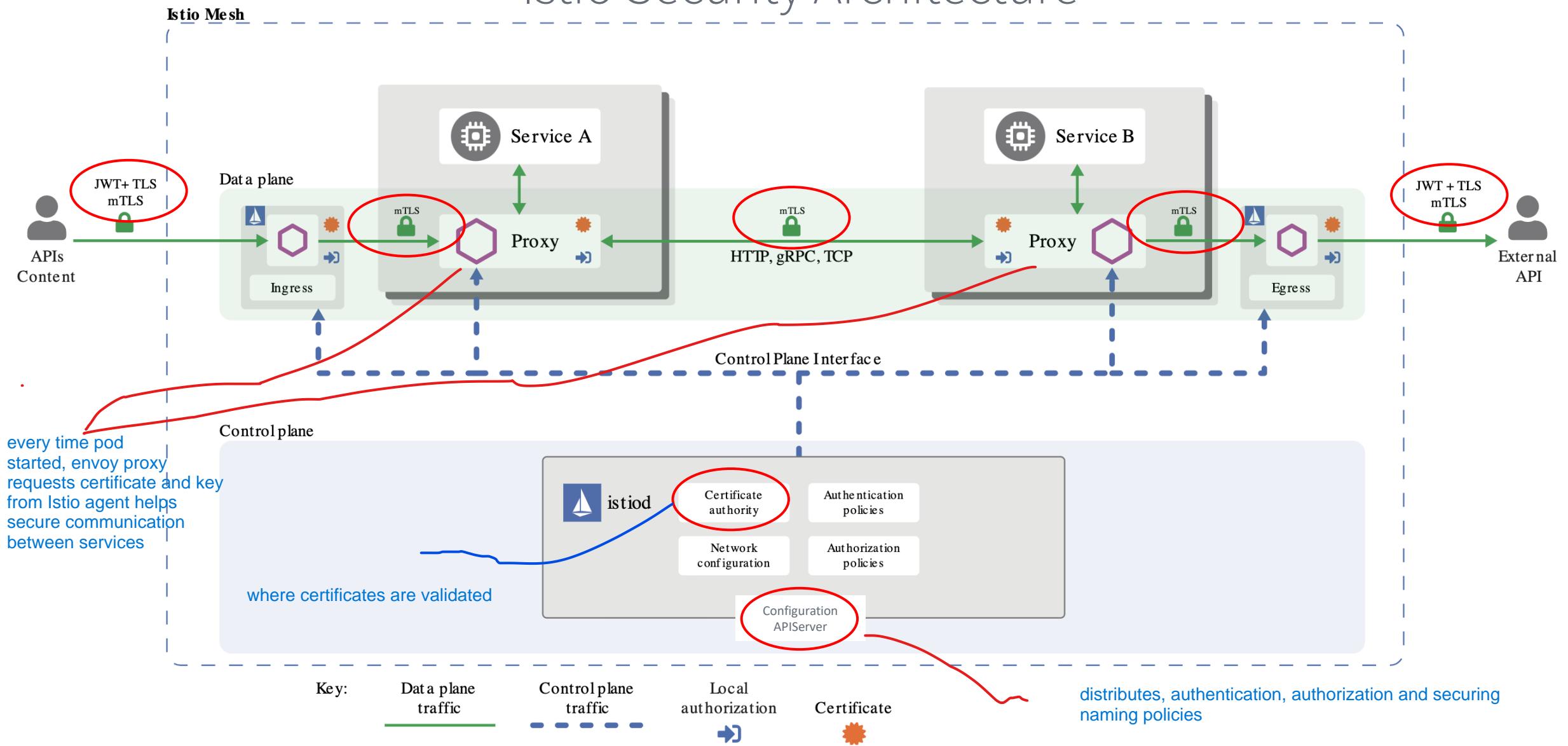


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# ISTIO SECURITY ARCHITECTURE



# Istio Security Architecture



Security Architecture

<https://istio.io/latest/docs/concepts/security/>



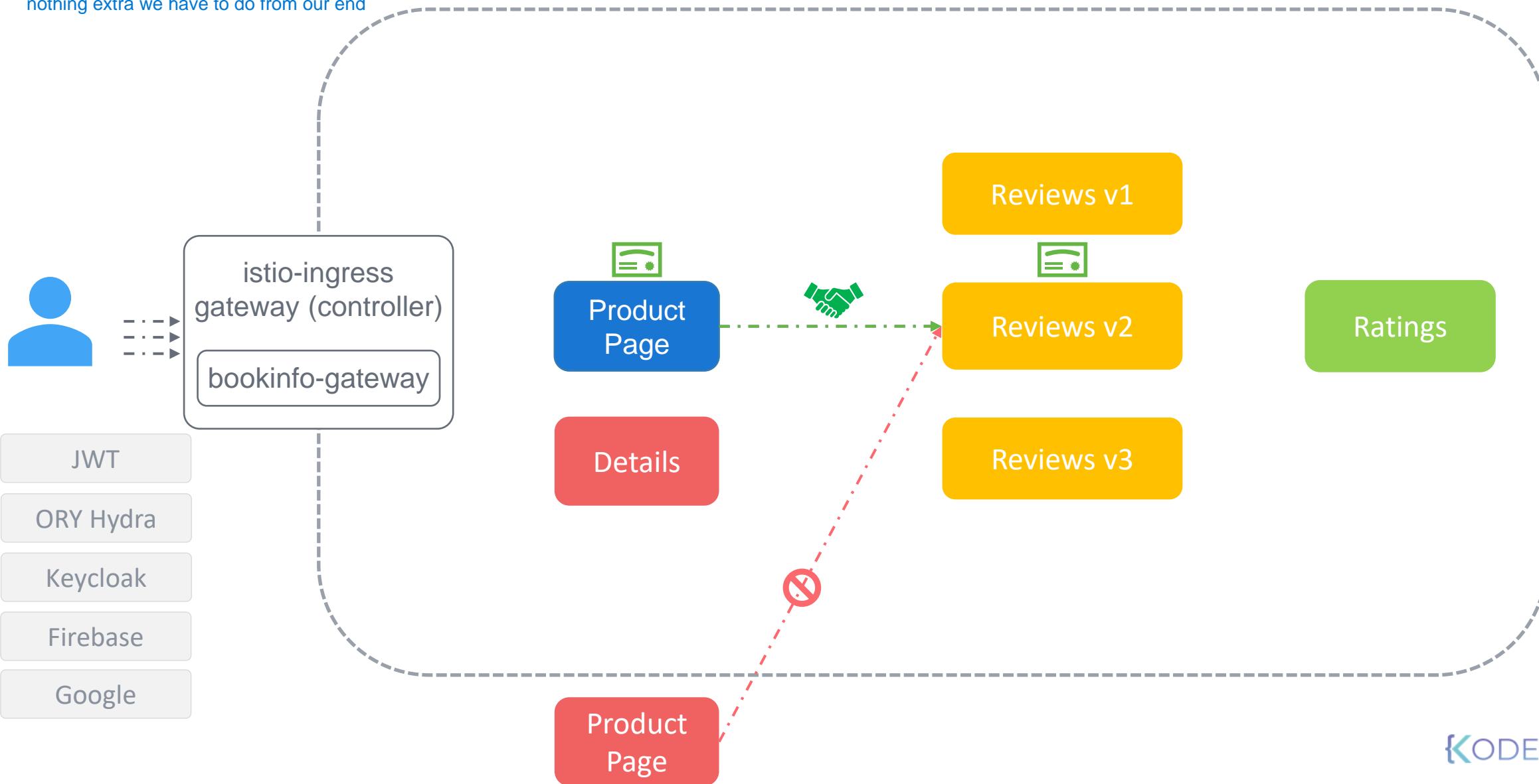
{KODE}{CLOUD}

# AUTHENTICATION





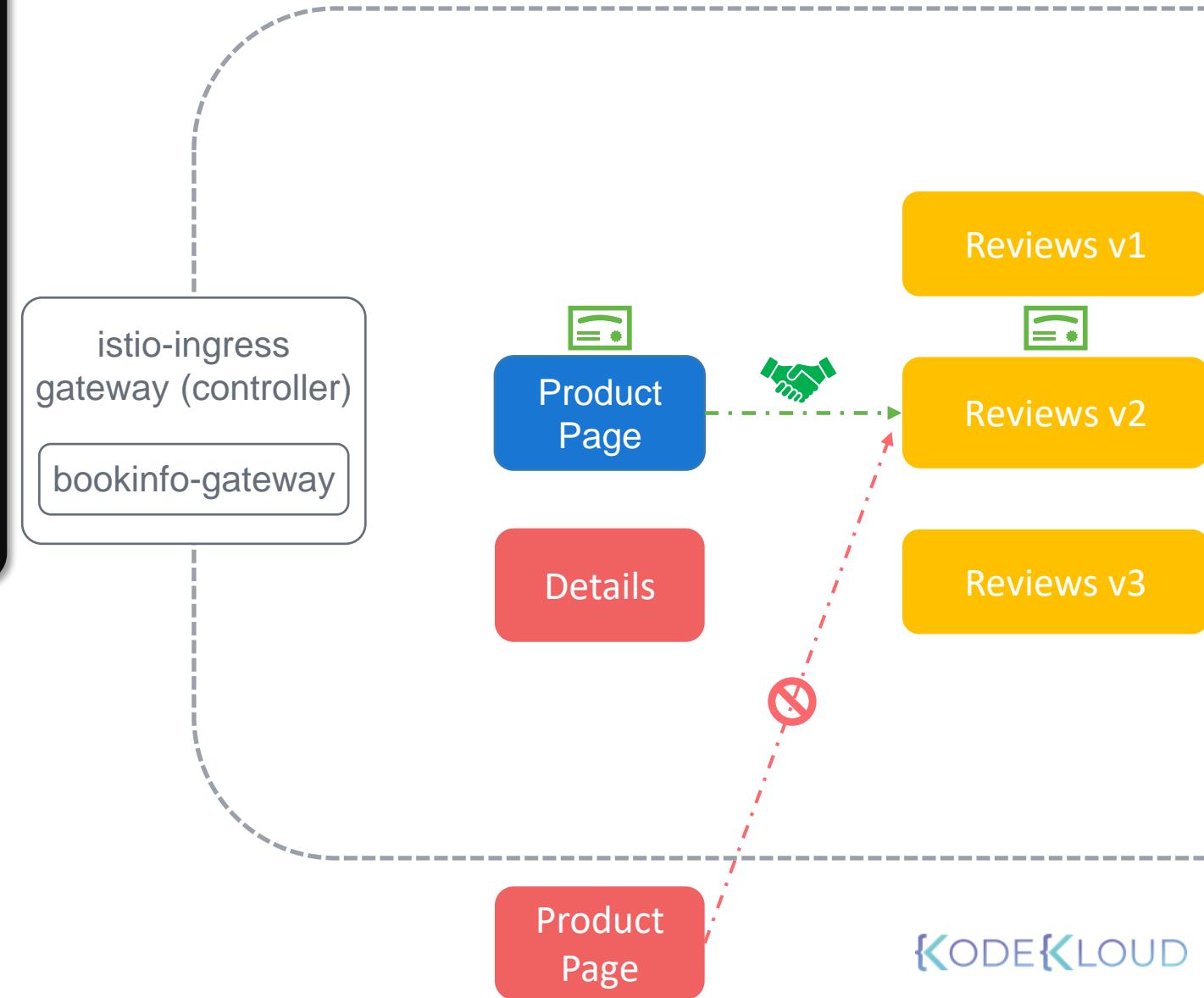
with MTLS, each service gets own identity, which is enforced using certificate pairs, IstioD manages it nothing extra we have to do from our end



## Peer Authentication

example-peer-authentication.yaml

```
apiVersion: security.istio.io/v1beta1
kind: PeerAuthentication
metadata:
  name: "example-peer-policy"
  namespace: "book-info"
spec:
  selector:
    matchLabels:
      app: reviews
  mtls:
    mode: STRICT
```



## Peer Authentication

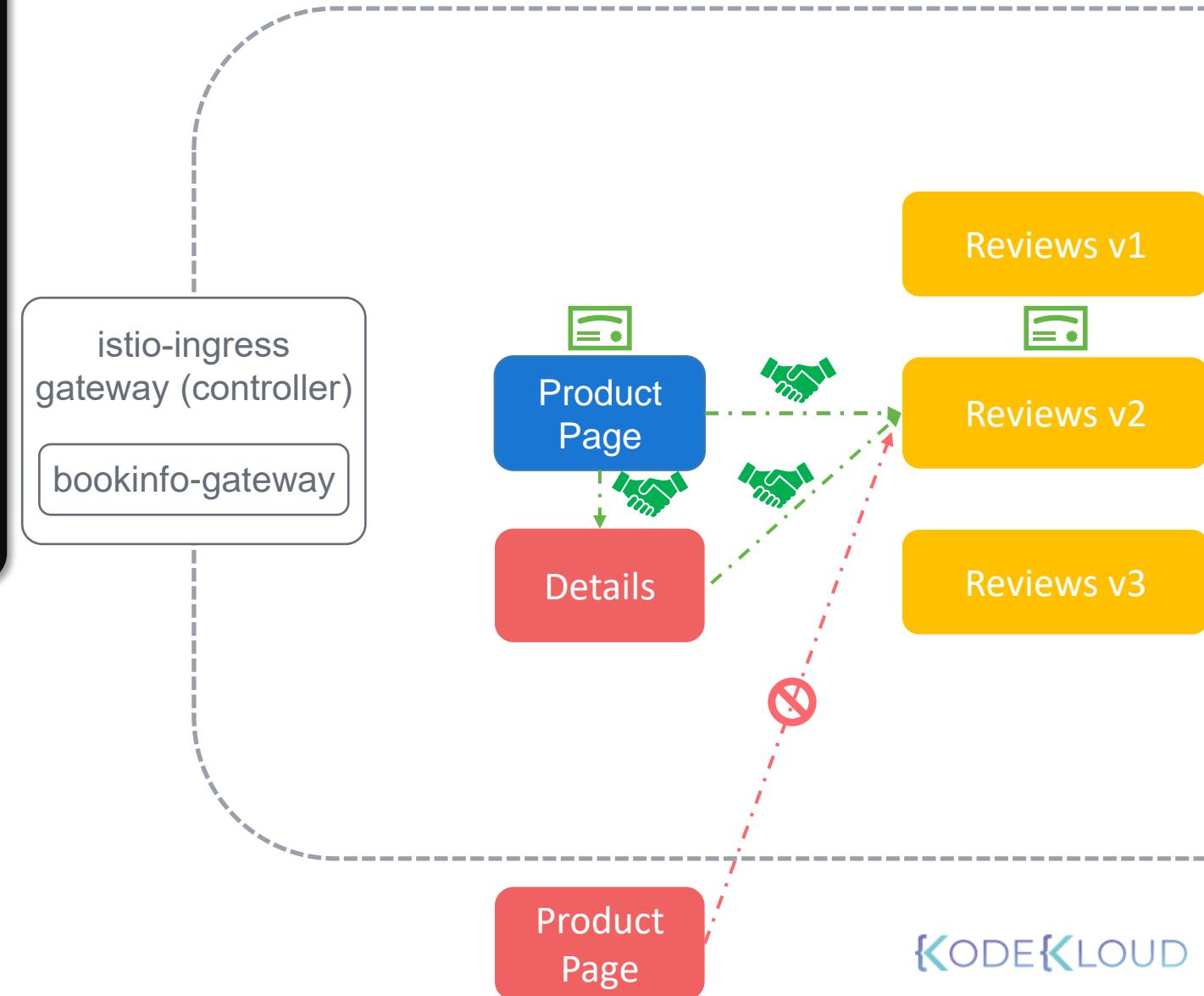
example-peer-authentication.yaml

```
apiVersion: security.istio.io/v1beta1
kind: PeerAuthentication
metadata:
  name: "example-peer-policy"
  namespace: "istio-system"
spec:
  mtls:
    mode: STRICT
```

Workload-specific policy

Namespace-wide policy

Mesh-wide policy



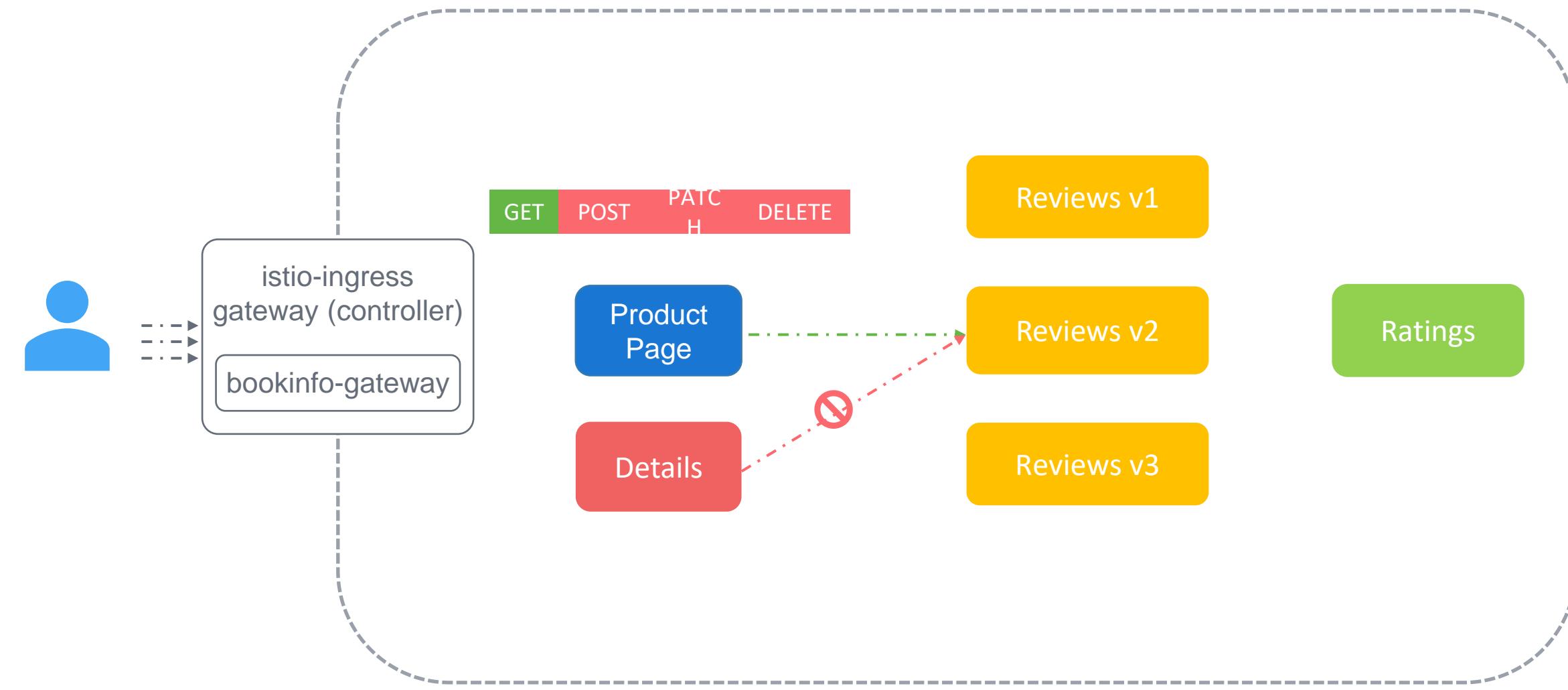


{KODE}{CLOUD}

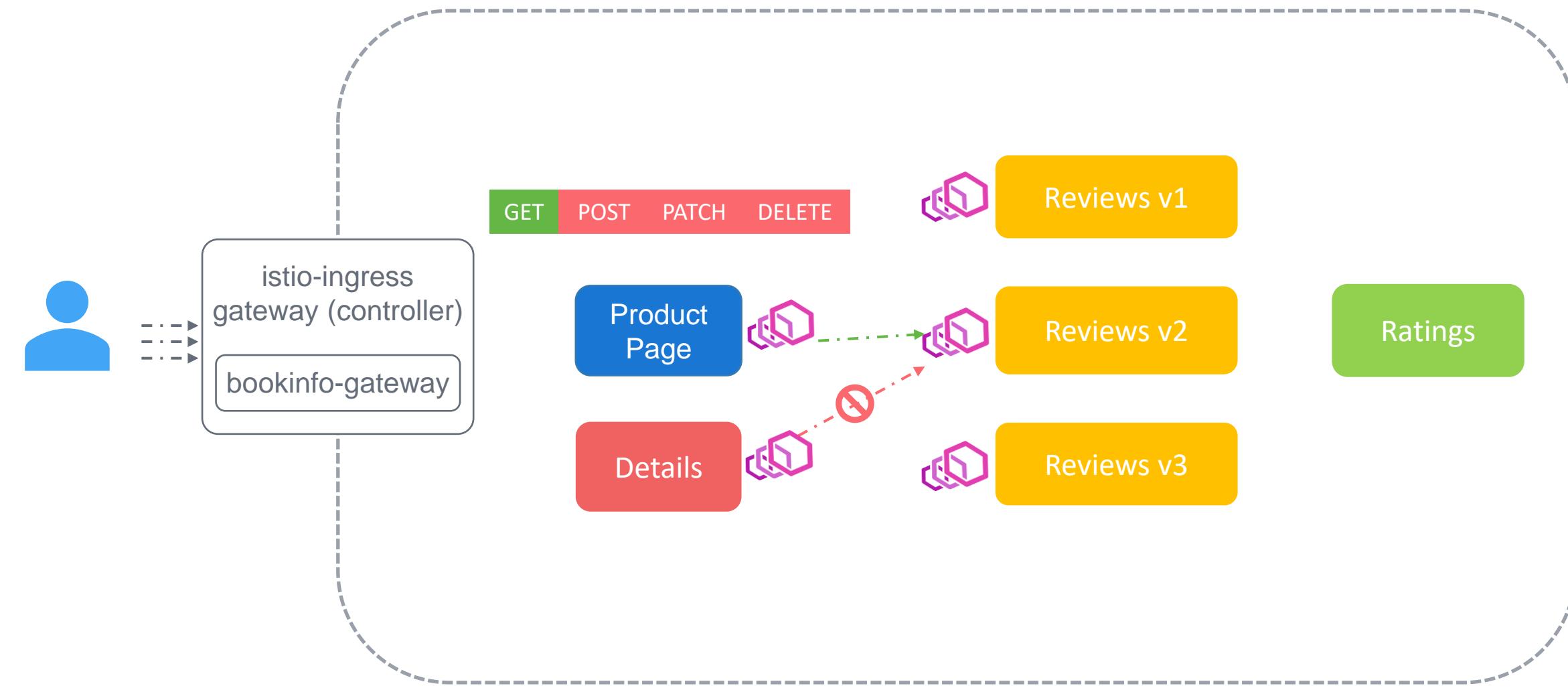
# AUTHORIZATION



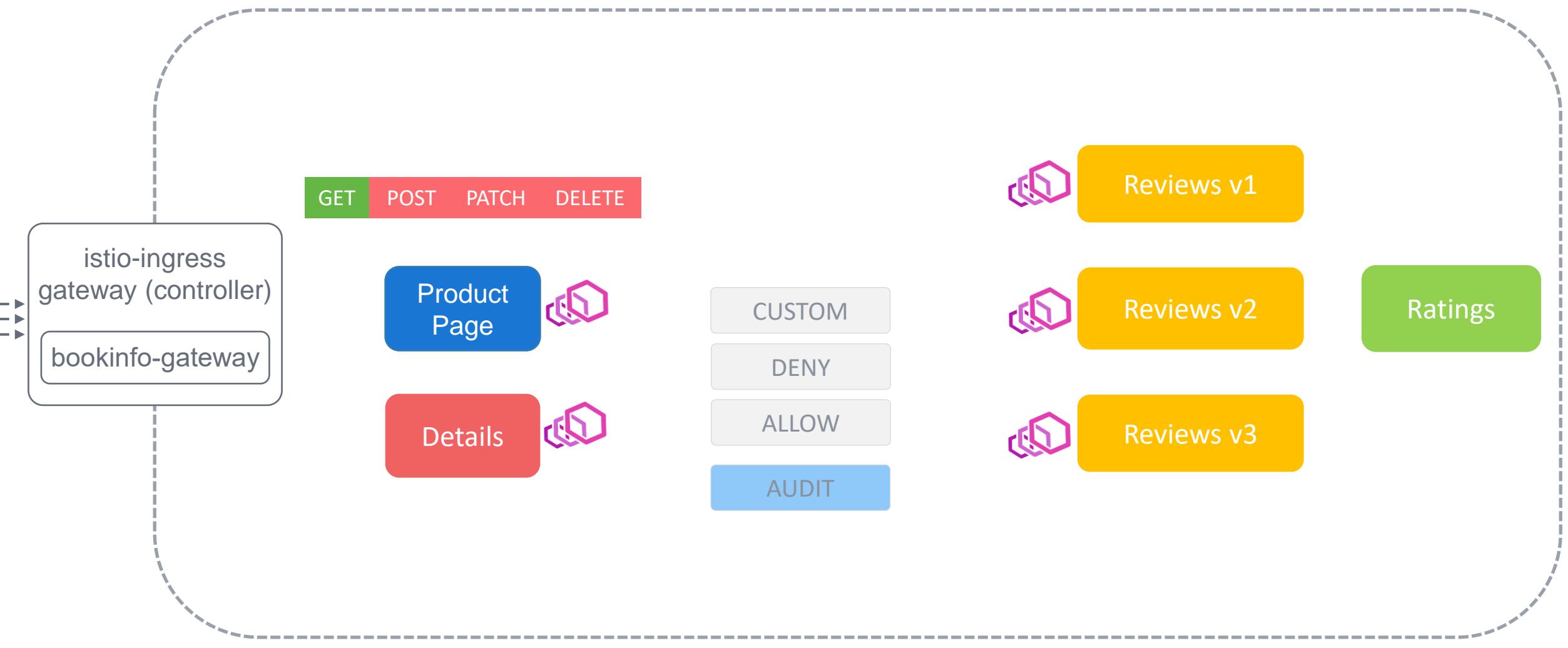
# Authorization



# Authorization Actions

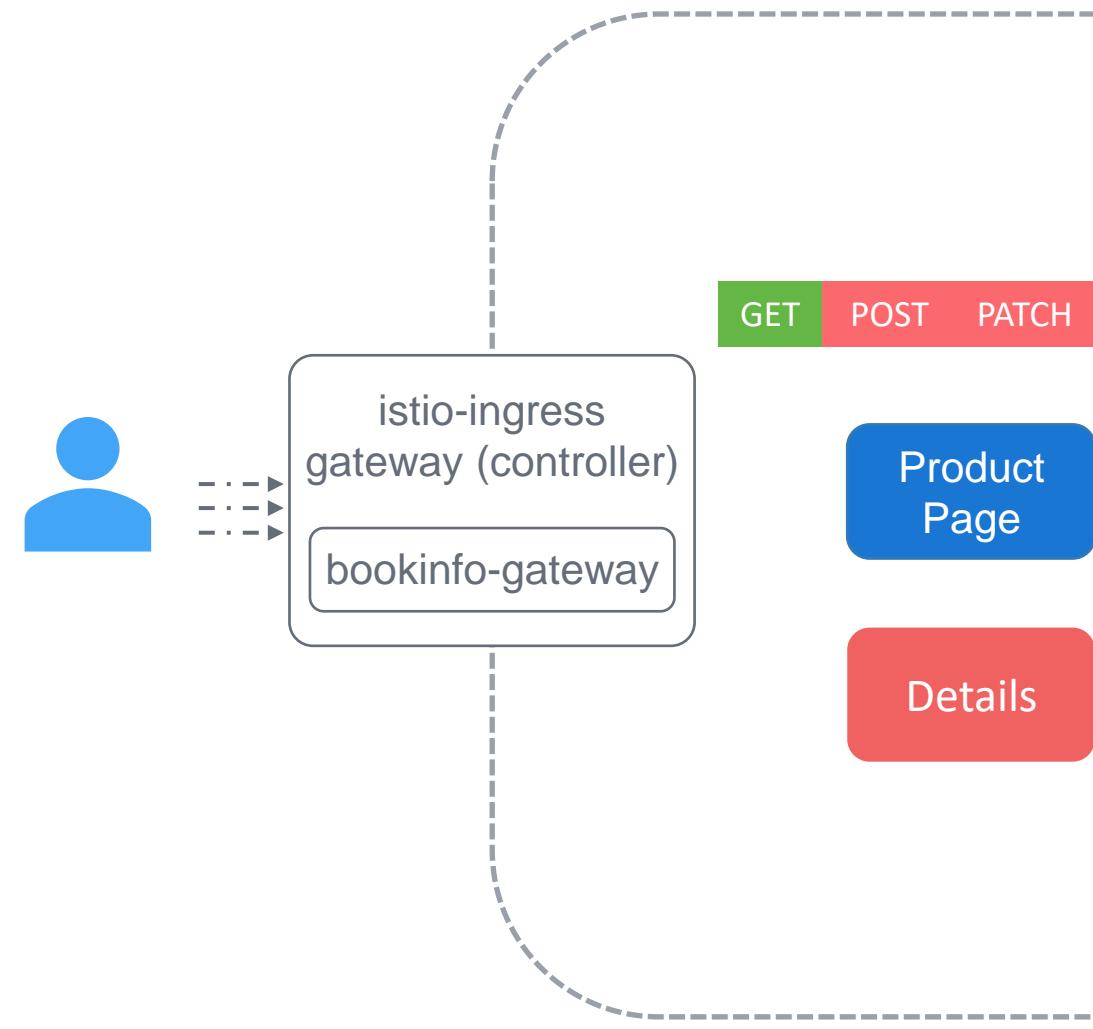


# Authorization



## auth-policy.yaml

```
apiVersion: security.istio.io/v1beta1
kind: AuthorizationPolicy
metadata:
  name: authdenypolicy
  namespace: bookinfo
spec:
  action: DENY
  rules:
  - from:
    - source:
        namespaces: ["bar"]
  to:
  - operation:
      methods: ["POST"]
```



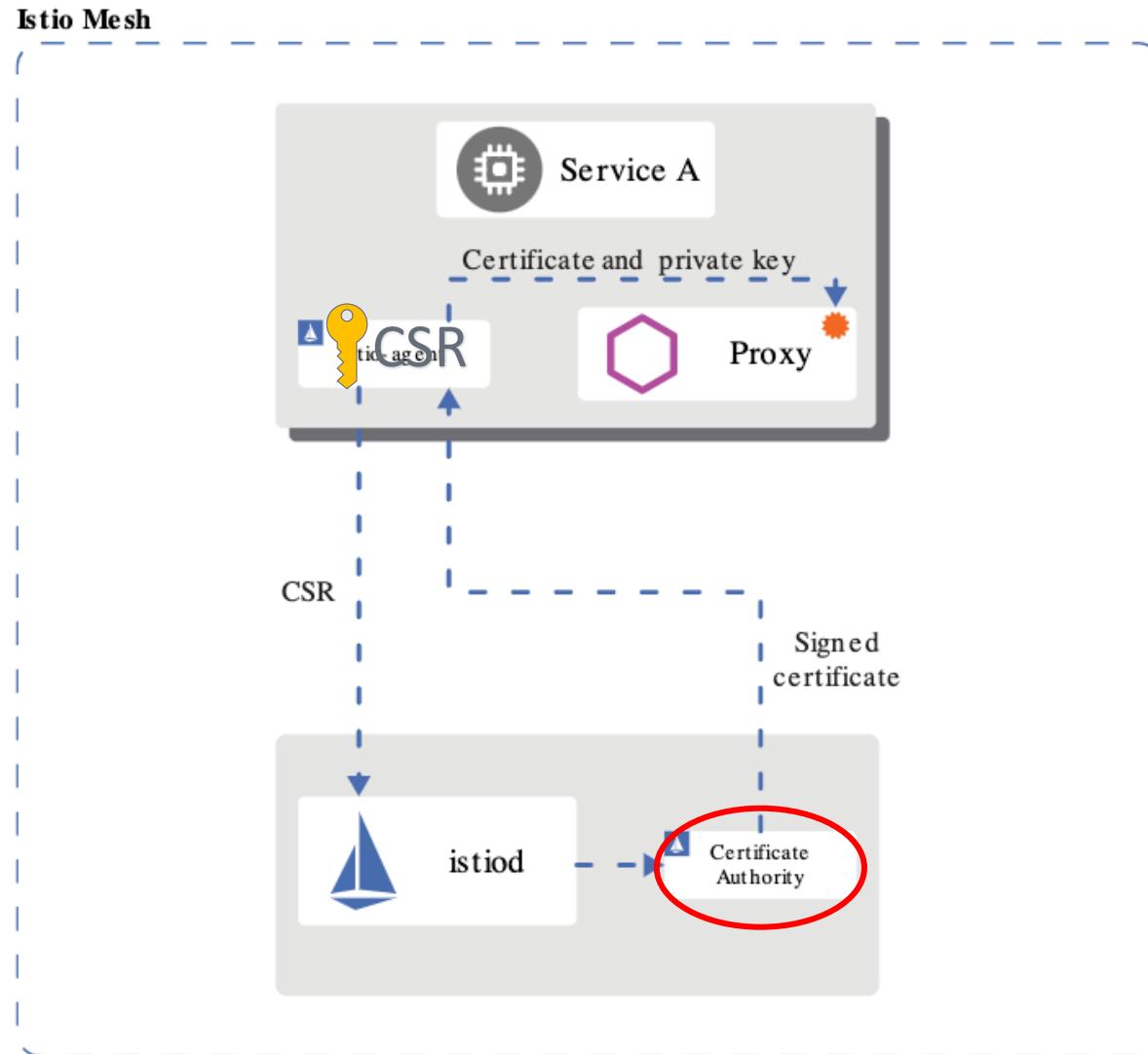


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# CERTIFICATE MANAGEMENT



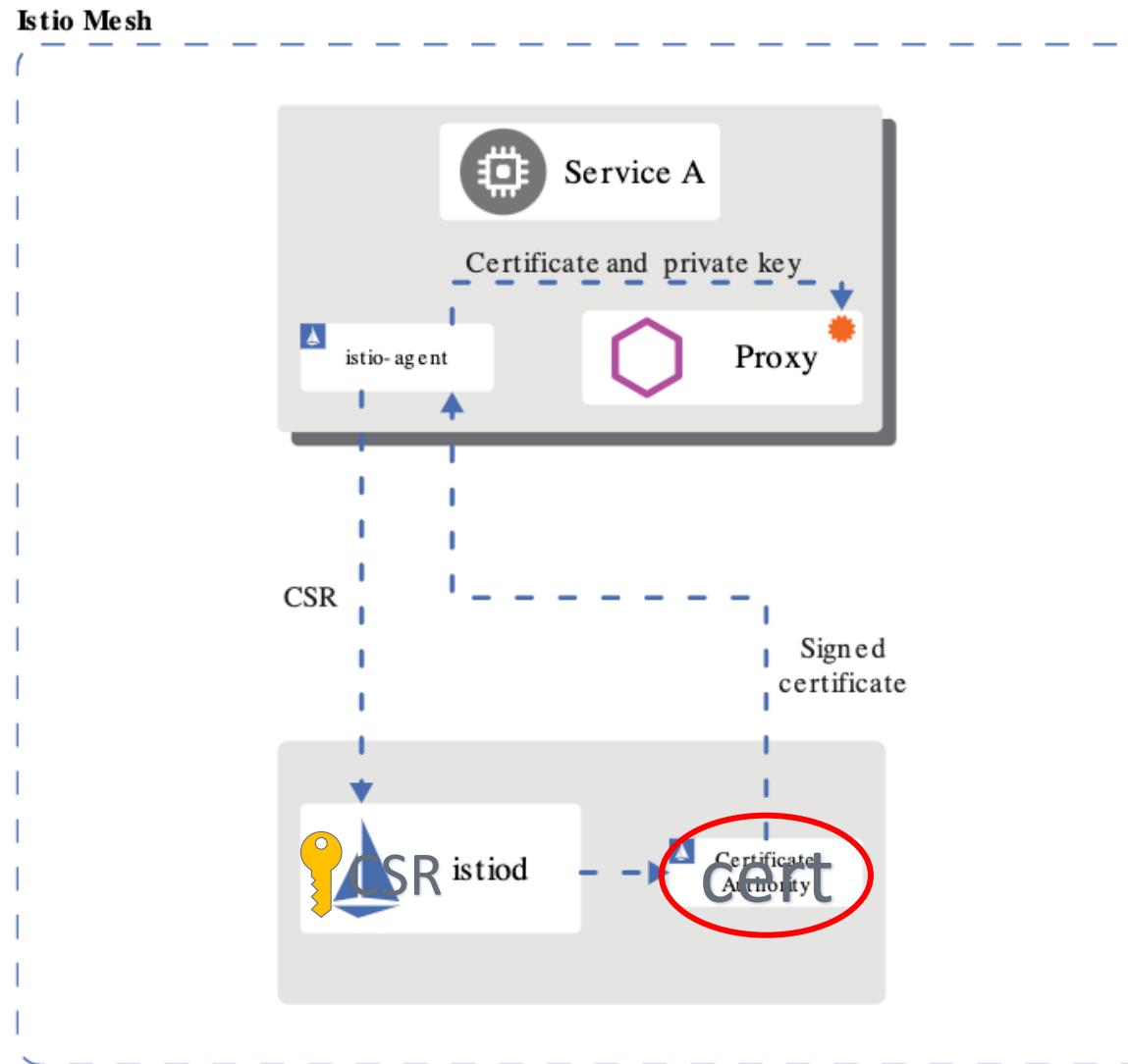
# Certificate Management



Identity Provisioning Workflow

<https://istio.io/latest/docs/concepts/security/> KODEKLOUD

# Certificate Management



HashiCorp  
**Vault**

Identity Provisioning Workflow

KODEKLOUD

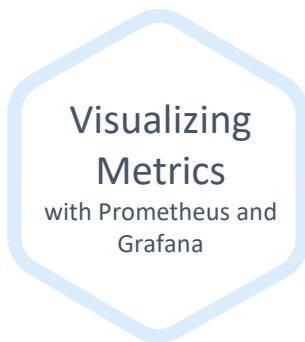


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# OBSERVABILITY



# Observability





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# VISUALIZING METRICS WITH PROMETHEUS AND GRAFANA







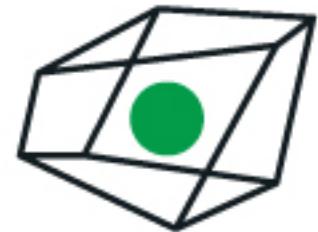
{KODE}{CLOUD}

# DISTRIBUTED TRACING WITH JAEGER





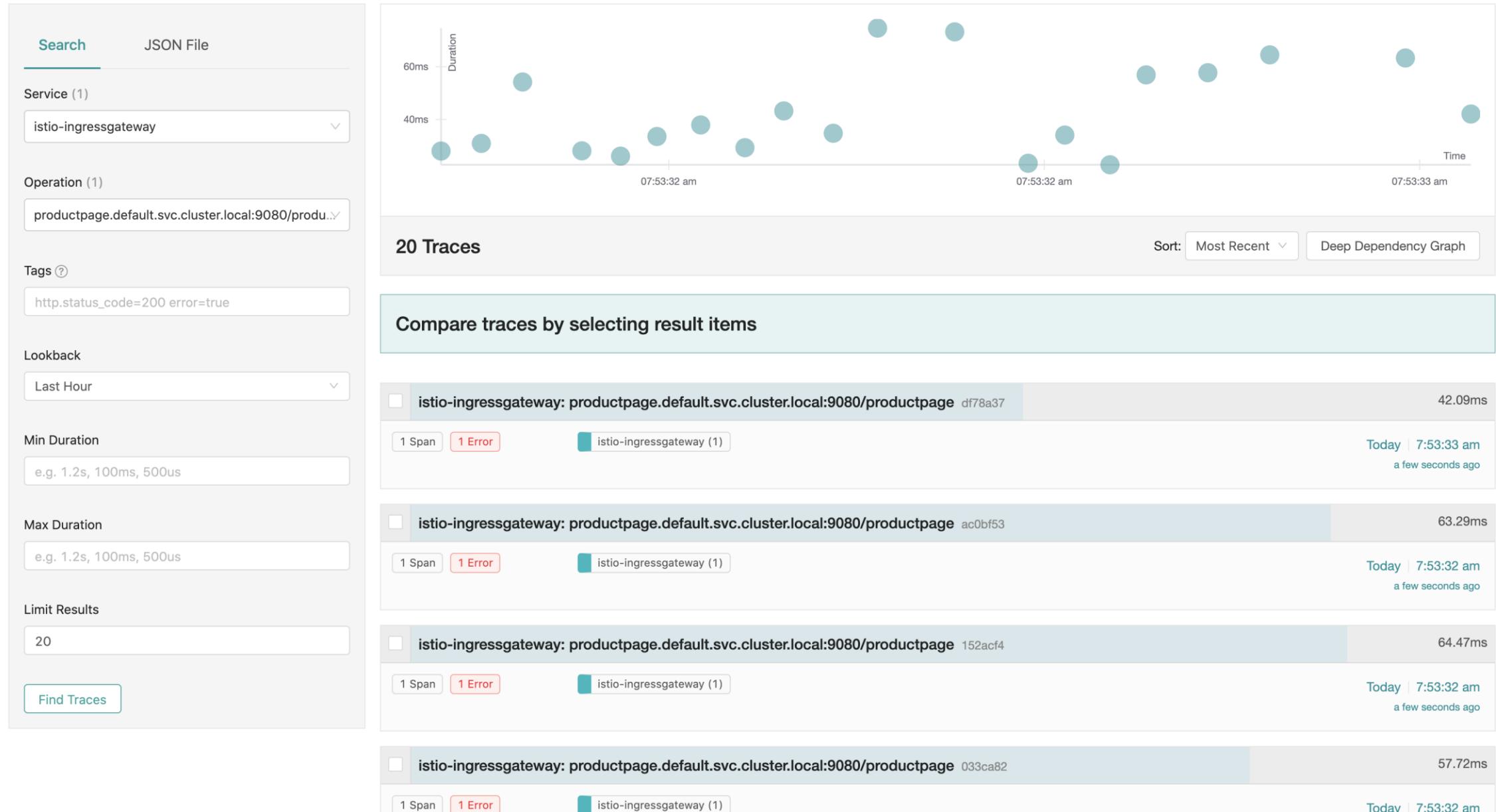
**ZIPKIN**

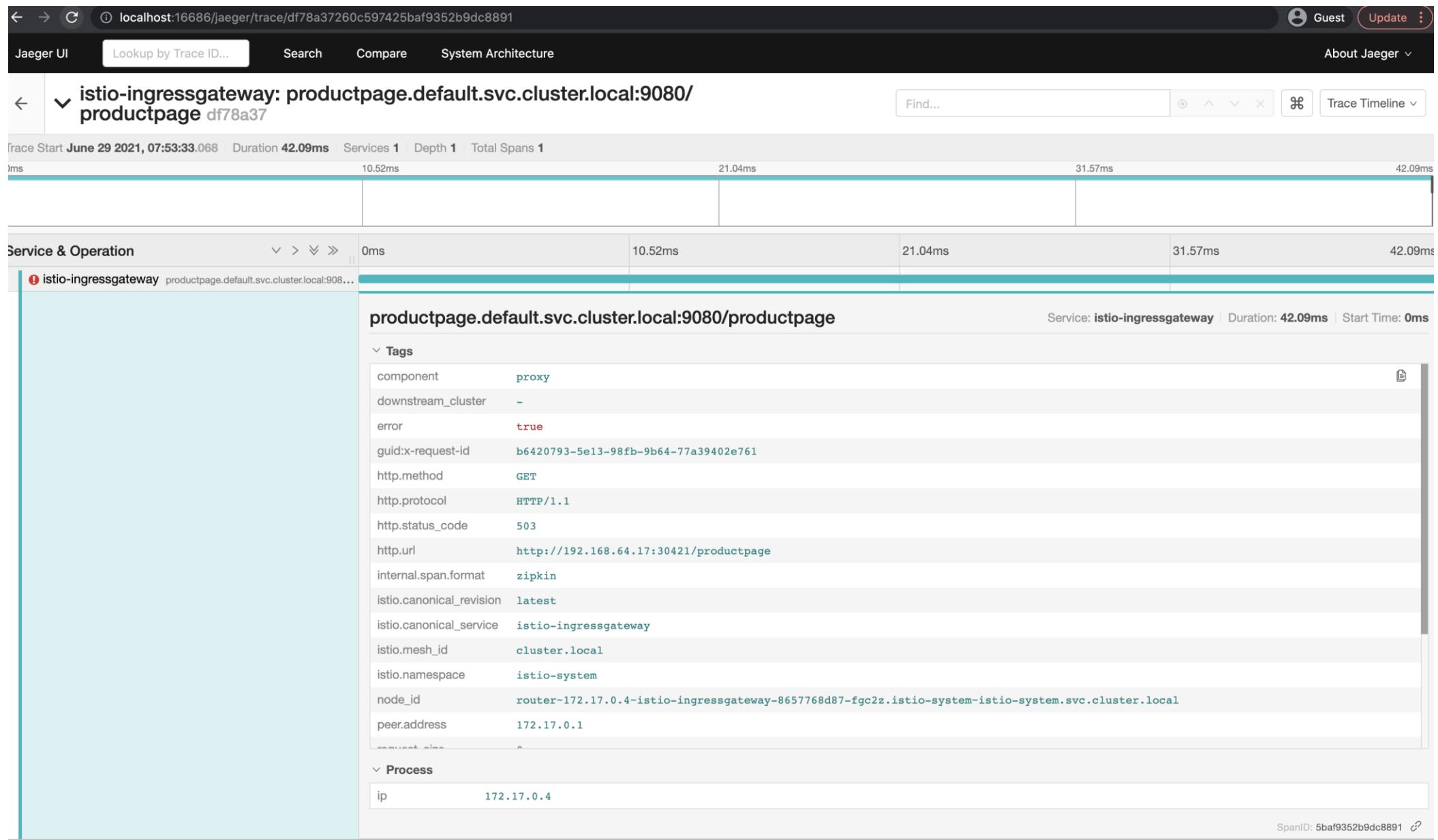


**Lightstep**



**DATADOG**







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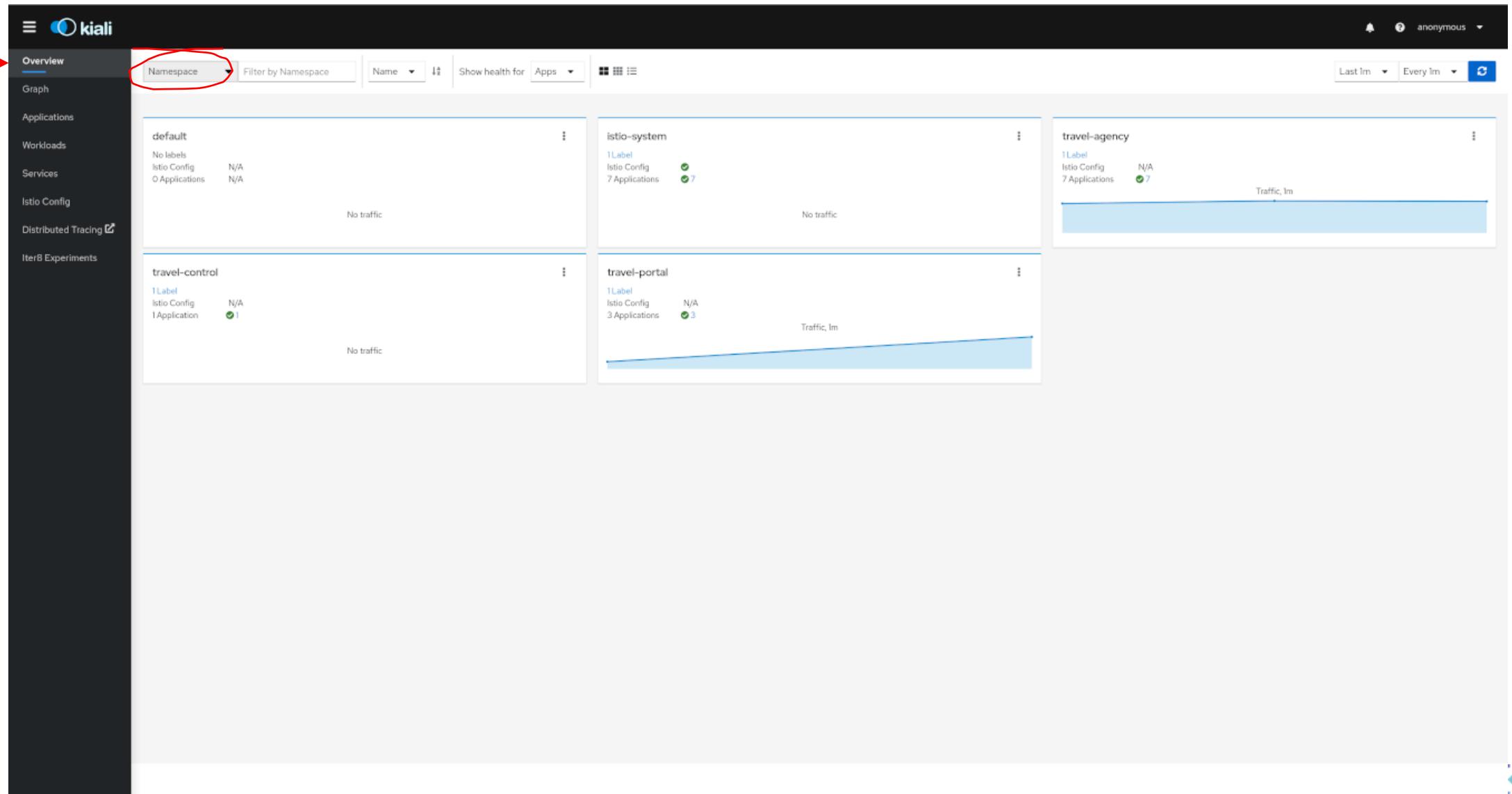
# KIALI IN DETAIL



# Kiali in Detail



# Overview

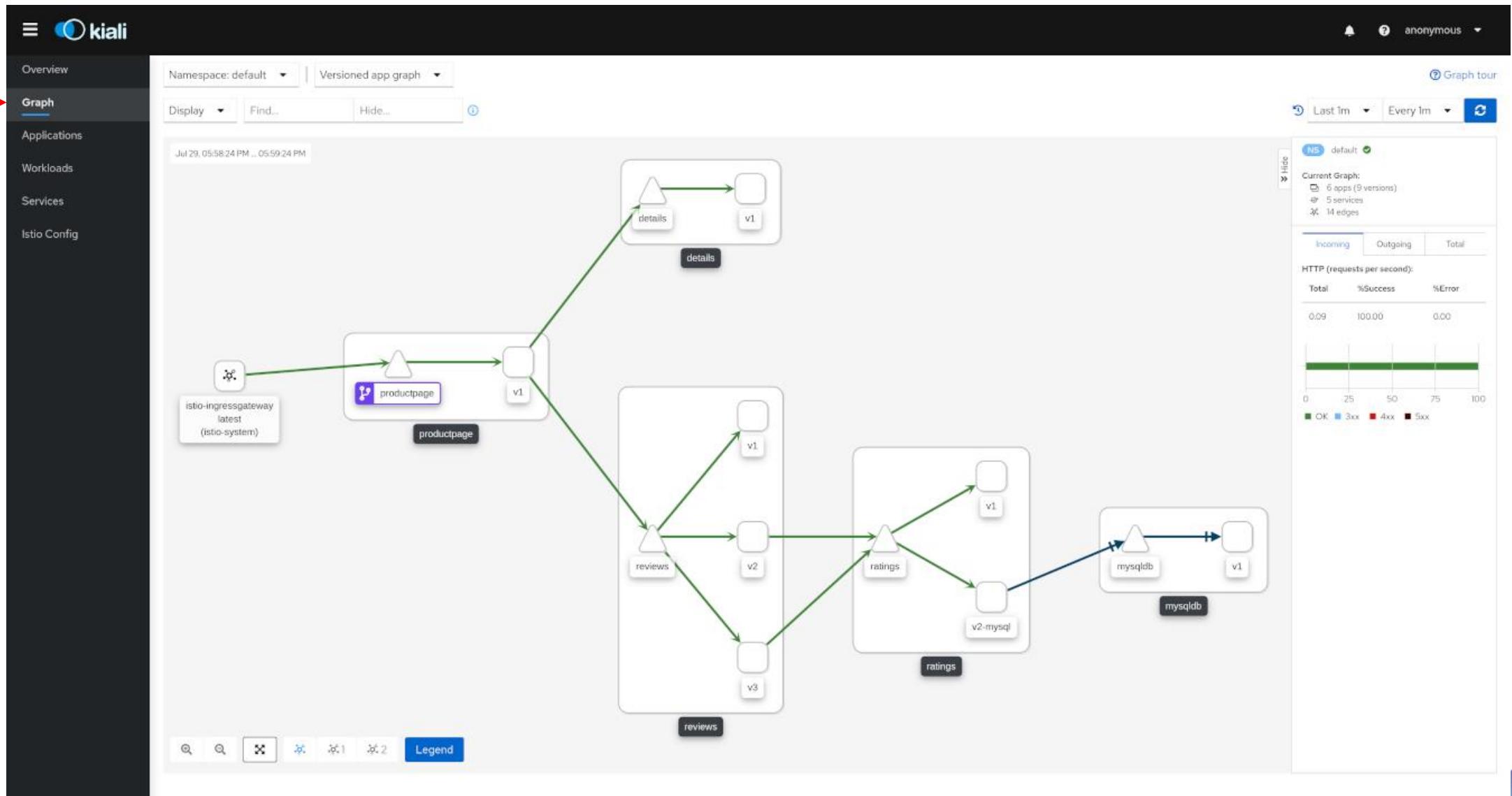


The screenshot shows the Kiali Overview page with a red arrow pointing to the 'Namespace' button in the top navigation bar. The page displays five namespaces:

- default**: No traffic.
- istio-system**: No traffic.
- travel-agency**: Traffic, 1m (indicated by a blue bar).
- travel-control**: No traffic.
- travel-portal**: Traffic, 1m (indicated by a blue bar).

Each namespace card includes information about TLabels, Istio Config, and Applications. The travel-portal namespace has 3 applications, while others have 0 or 1 application. The travel-agency namespace has 7 applications.

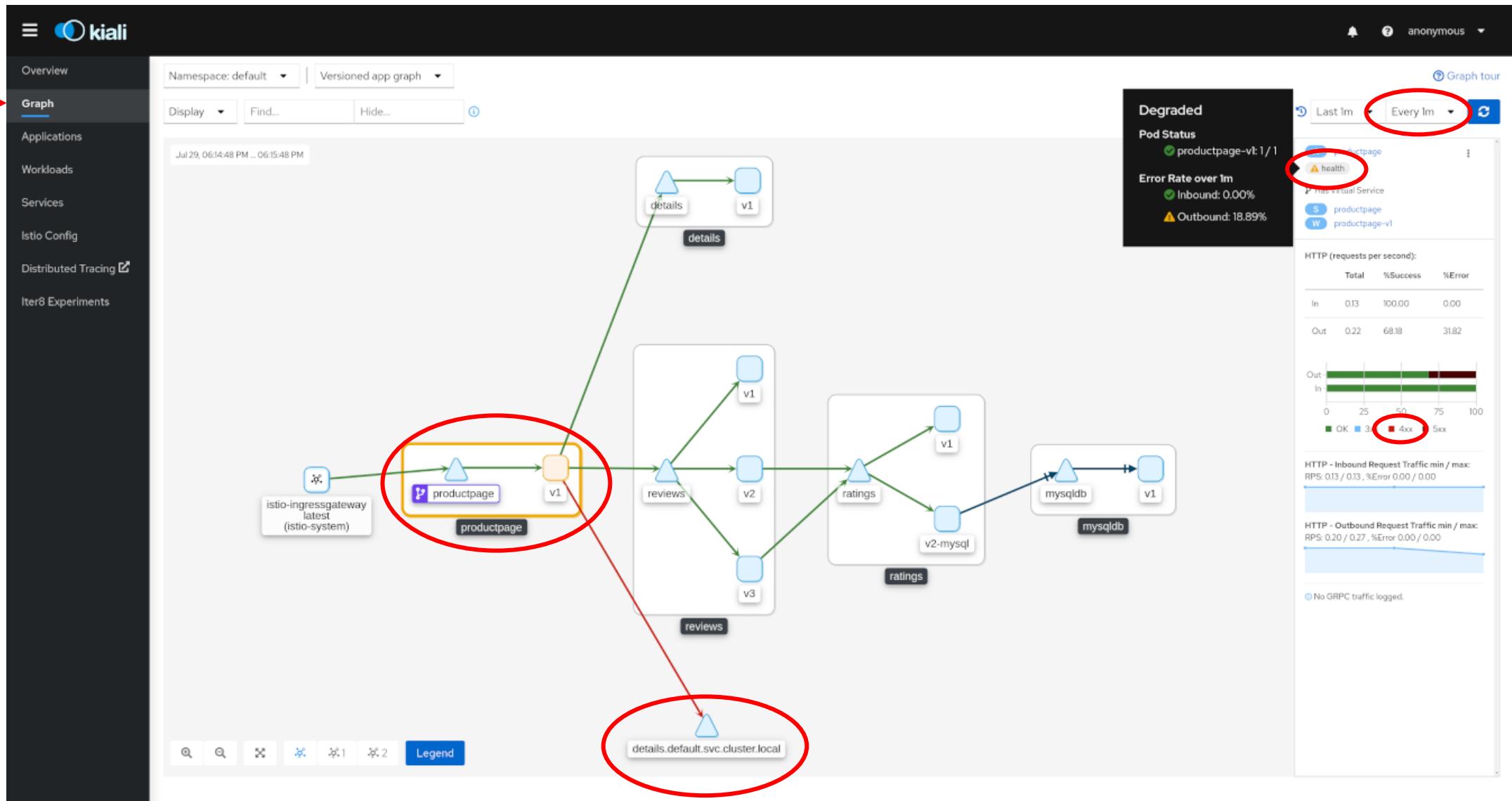
## Graph



```
>_
```

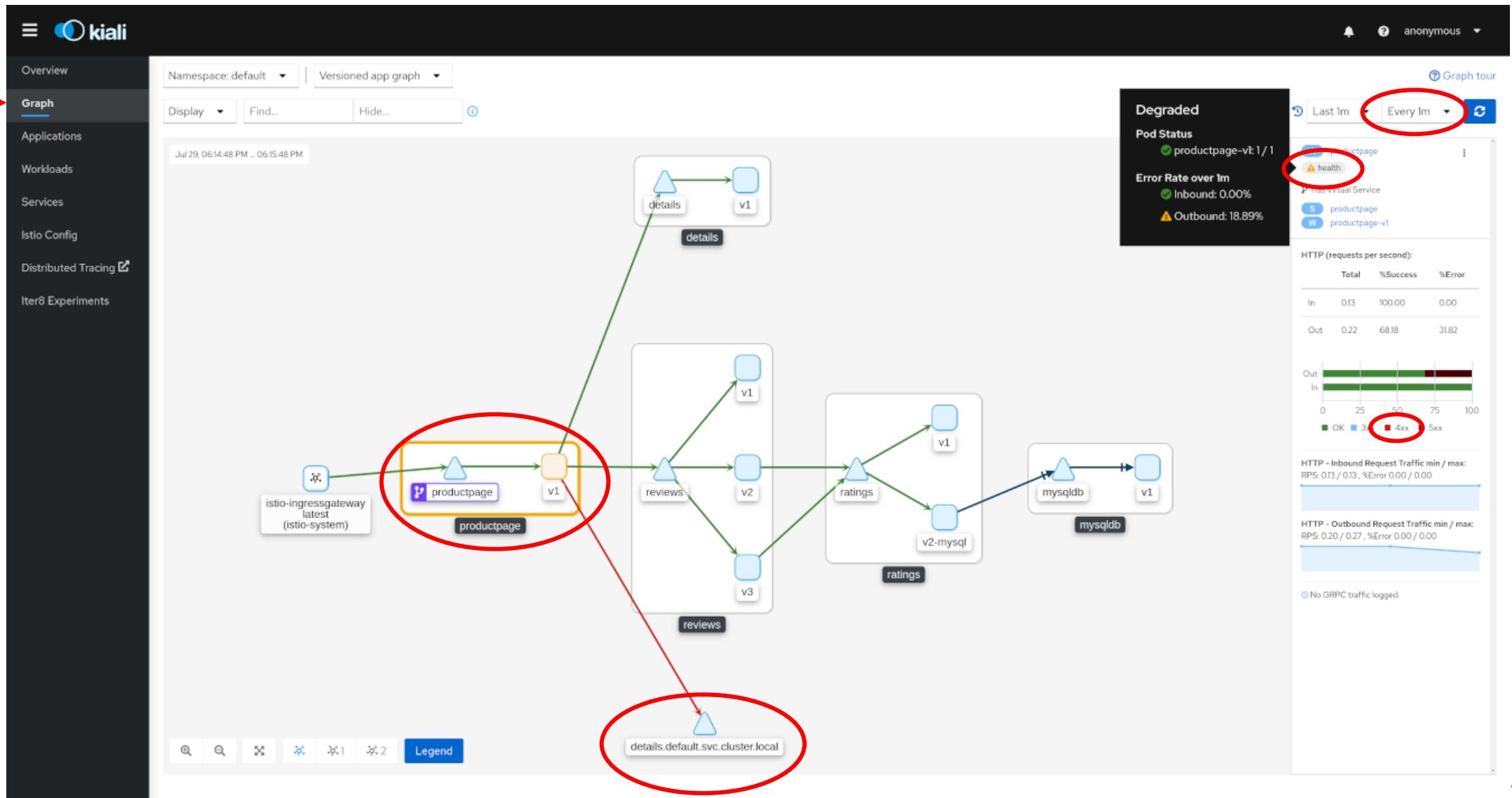
```
$ kubectl delete service/details  
service "details" deleted
```

## Graph

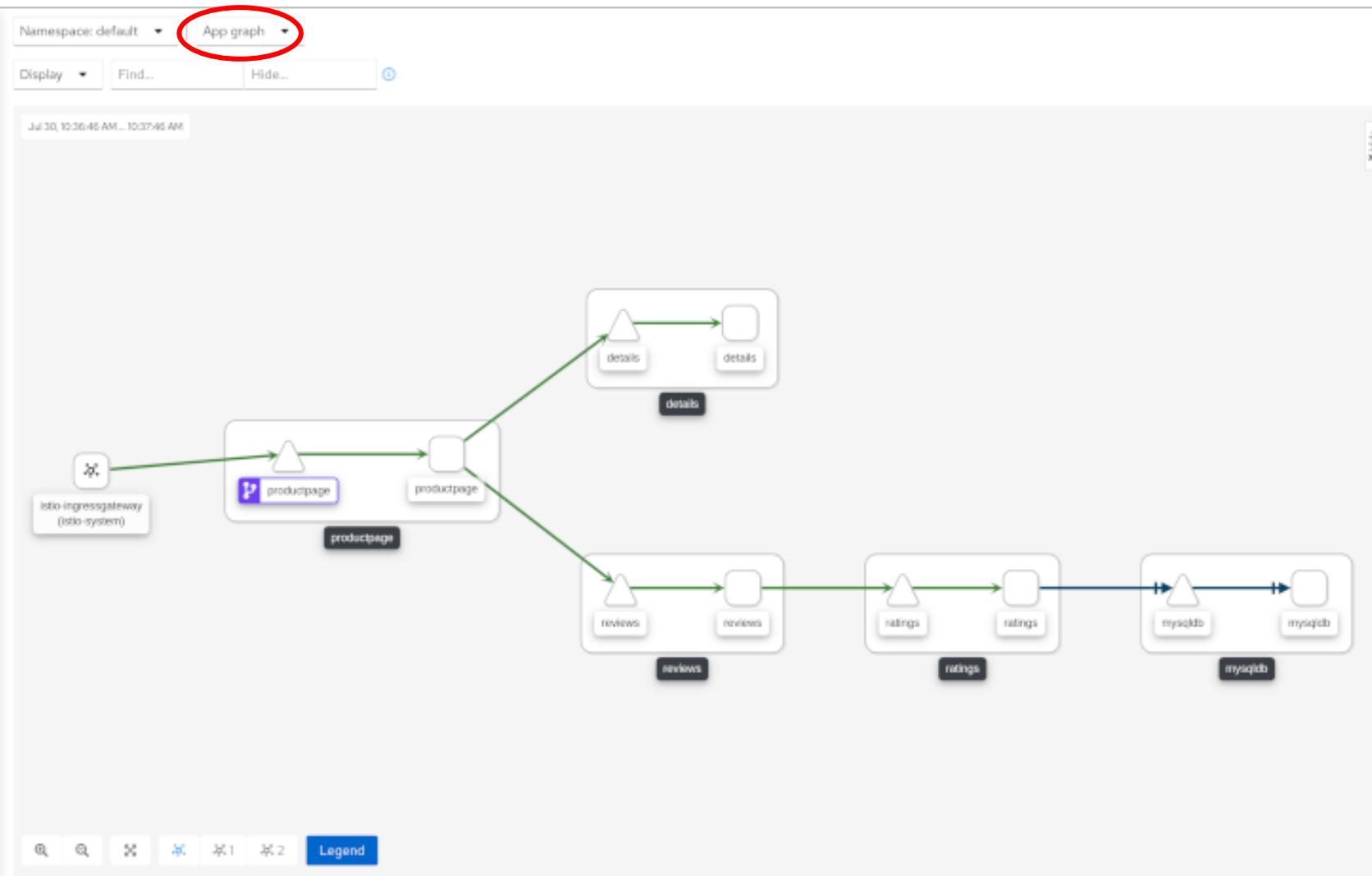


```
>_
$ kubectl apply -f
samples/bookinfo/platform/kube/bookinfo.yaml
service/details created
serviceaccount/bookinfo-details unchanged
deployment.apps/details-v1 unchanged
service/ratings unchanged
serviceaccount/bookinfo-ratings unchanged
deployment.apps/ratings-v1 unchanged
service/reviews unchanged
serviceaccount/bookinfo-reviews unchanged
deployment.apps/reviews-v1 unchanged
deployment.apps/reviews-v2 unchanged
deployment.apps/reviews-v3 unchanged
service/productpage unchanged
serviceaccount/bookinfo-productpage unchanged
deployment.apps/productpage-v1 unchanged
```

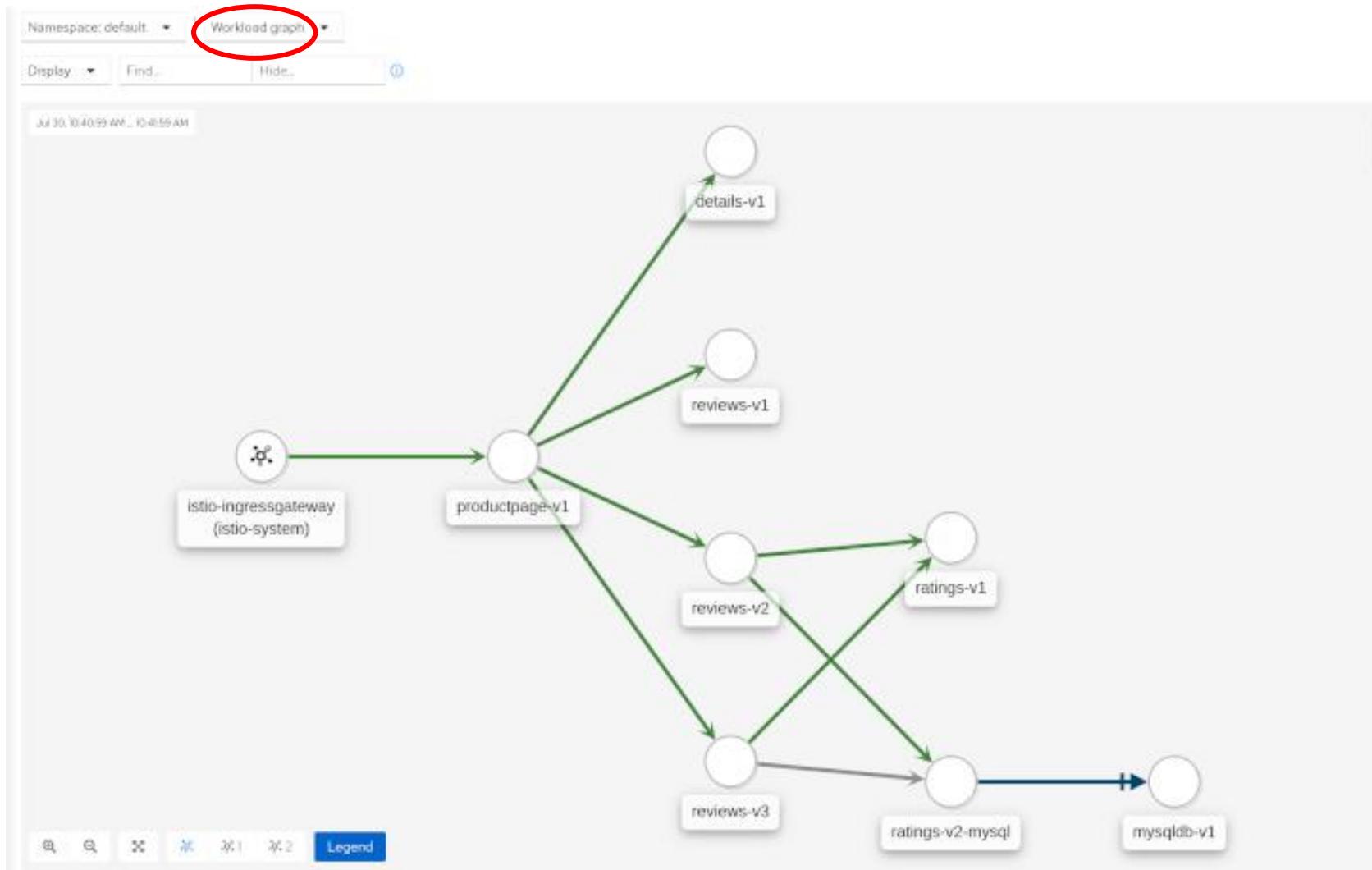
## Graph



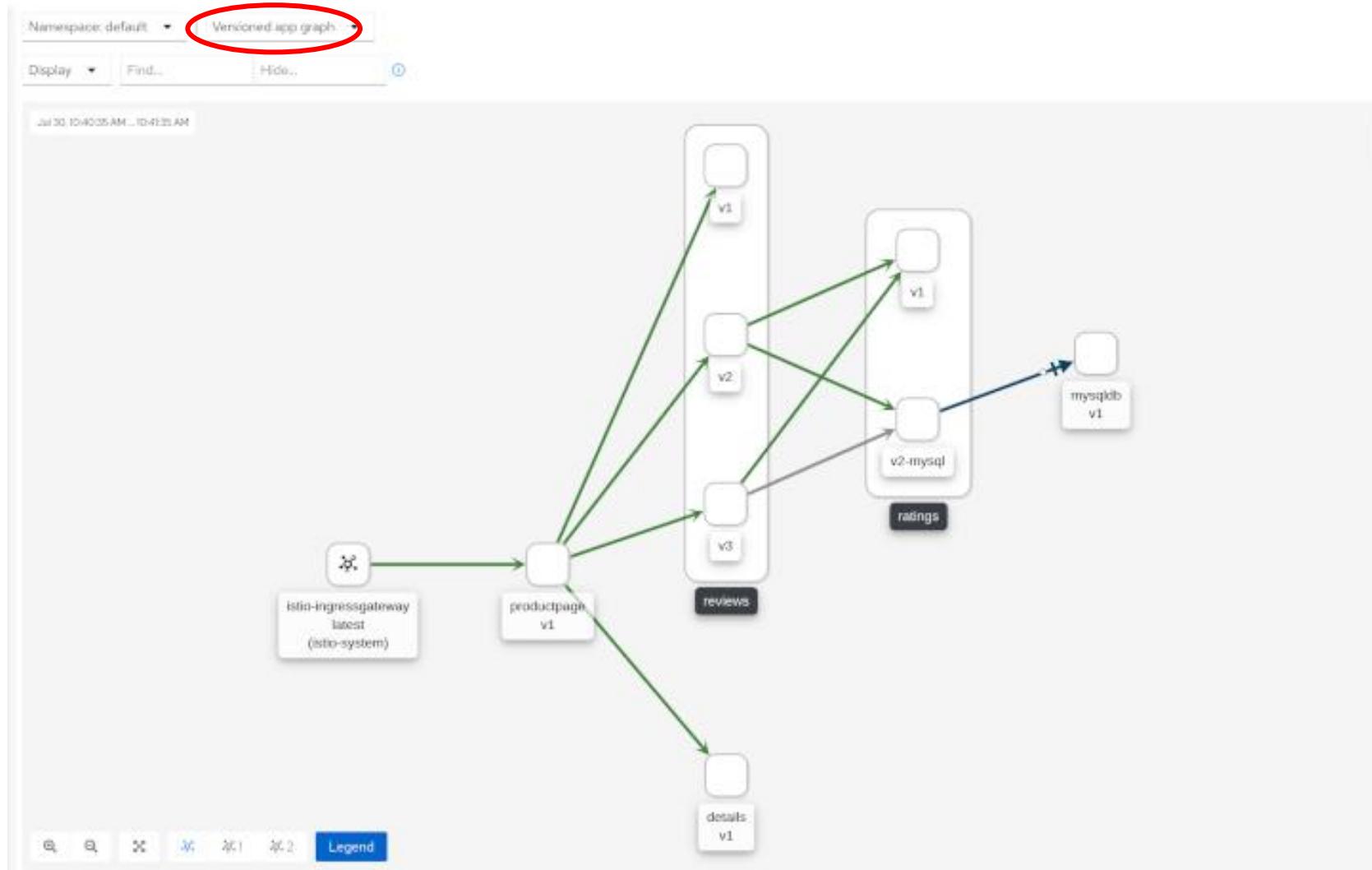
# The App Graph



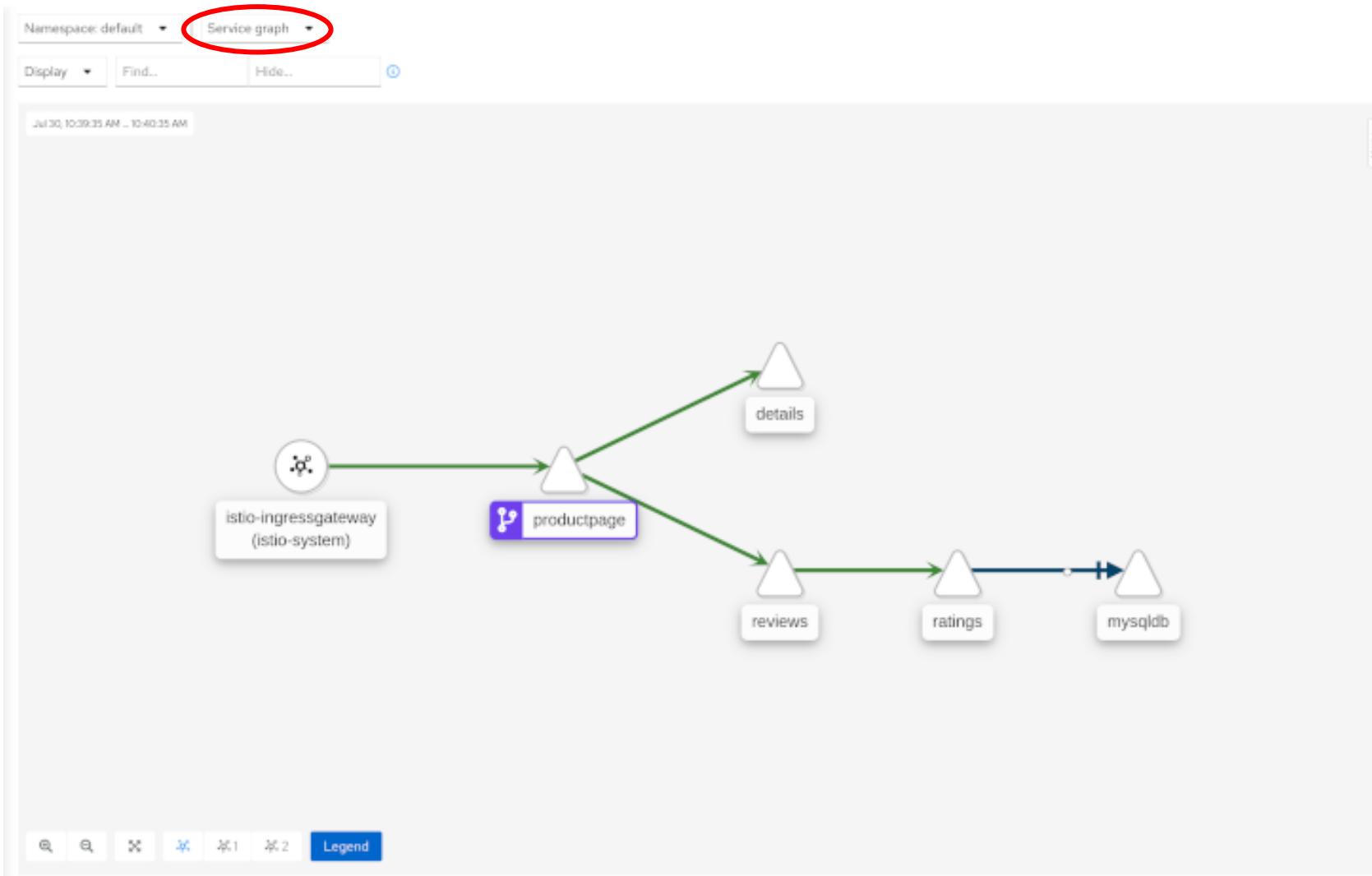
# The Workload Graph



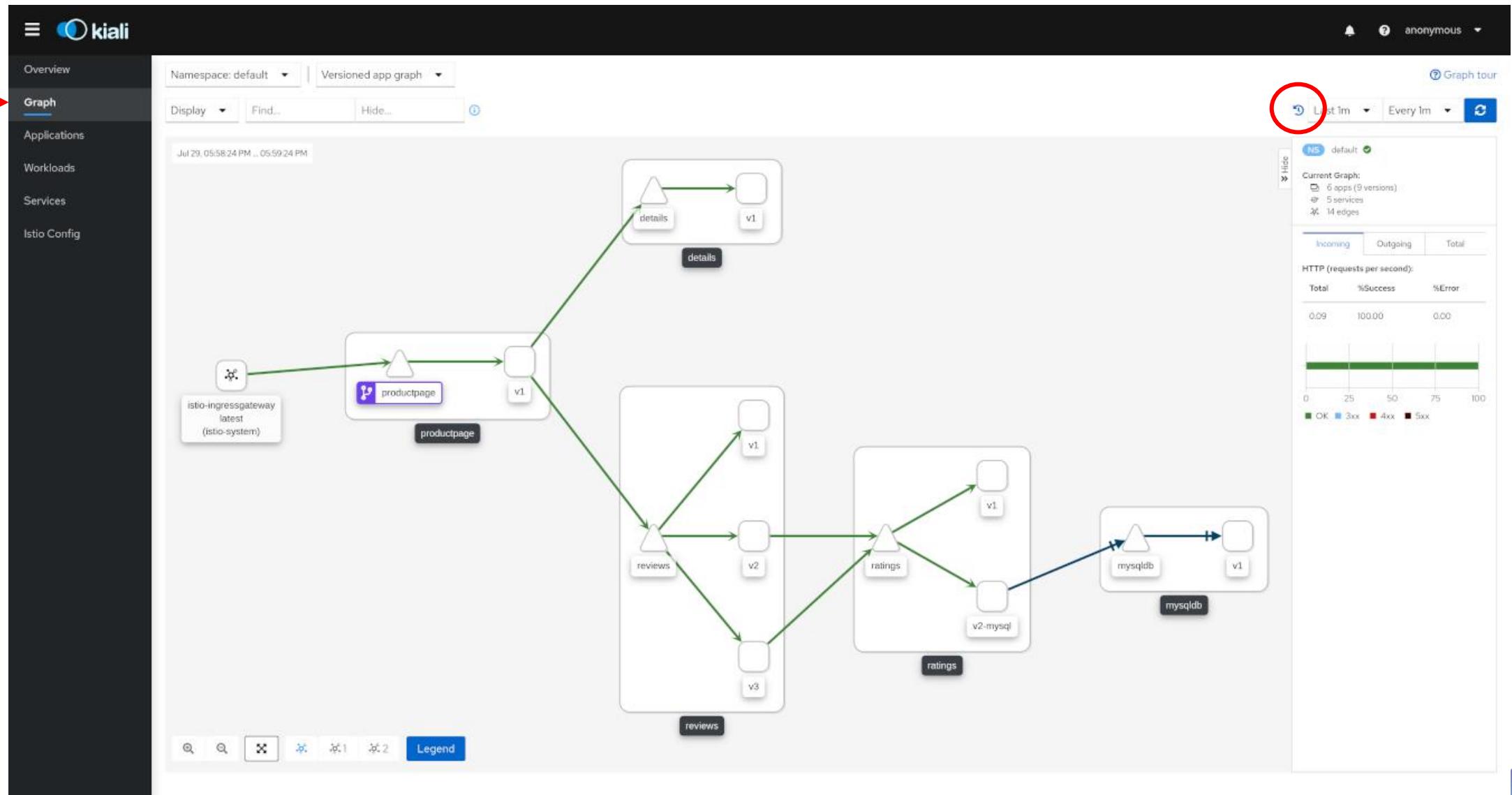
# The Versioned App Graph



# The Service Graph



# Replay An Issue Back in Time



# Applications & Workloads & Services

Workloads > Namespace: default > productpage-v1

Overview Graph Applications Workloads Services Istio Config Distributed Tracing Iter8 Experiments

Pod: productpage-v1-7f4cc988c6-8hm98 Container: productpage-v1

Last 500 lines ▾ Last 10m ▾ Every 1m ▾

Show... Hide... Activate Regex

Side by Side

productpage-v1

```

2020-07-30T11:16:32.321998063Z reply: 'HTTP/1.1 200 OK\r\n'
2020-07-30T11:16:32.322003878Z header: content-type: application/json
2020-07-30T11:16:32.322008552Z header: server: envoy
2020-07-30T11:16:32.322013252Z header: date: Thu, 30 Jul 2020 11:16:32 GMT
2020-07-30T11:16:32.322017794Z header: content-length: 178
2020-07-30T11:16:32.322022298Z header: x-envoy-upstream-service-time: 3
2020-07-30T11:16:32.322047316Z DEBUG:urllib3.connectionpool:http://details:9080 "GET /details/0 HTTP/1.1" 200 178
2020-07-30T11:16:32.322078154Z DEBUG:urllib3.connectionpool:Starting new HTTP connection (1): reviews:9080
2020-07-30T11:16:32.341006559Z send: b'GET /reviews/0 HTTP/1.1\r\nHost: reviews:9080\r\nUser-Agent: curl/7.69.1\r\nAccept-Encoding: gzip, deflate\r\nConnection: keep-alive\r\n'
2020-07-30T11:16:32.341093037Z reply: 'HTTP/1.1 200 OK\r\n'
2020-07-30T11:16:32.341103932Z header: x-powered-by: Servlet/3.1
2020-07-30T11:16:32.341116716Z header: content-type: application/json
2020-07-30T11:16:32.341117217Z header: date: Thu, 30 Jul 2020 11:16:32 GMT
2020-07-30T11:16:32.341124869Z header: content-language: en-US
2020-07-30T11:16:32.341131172Z header: content-length: 379
2020-07-30T11:16:32.341137859Z header: x-envoy-upstream-service-time: 15
2020-07-30T11:16:32.341145359Z header: server: envoy
2020-07-30T11:16:32.341152973Z DEBUG:urllib3.connectionpool:http://reviews:9080 "GET /reviews/0 HTTP/1.1" 200 379
2020-07-30T11:16:32.341160927Z INFO:werkzeug::ffff:127.0.0.1 - - [30/Jul/2020 11:16:32] "GET /productpage HTTP/1.1" 200 -
2020-07-30T11:16:42.369205015Z DEBUG:urllib3.connectionpool:Starting new HTTP connection (1): details:9080
2020-07-30T11:16:42.375335542Z send: b'GET /details/0 HTTP/1.1\r\nHost: details:9080\r\nUser-Agent: curl/7.69.1\r\nAccept-Encoding: gzip, deflate\r\nConnection: keep-alive\r\n'
2020-07-30T11:16:42.37539108Z reply: 'HTTP/1.1 200 OK\r\n'
2020-07-30T11:16:42.375439014Z header: content-type: application/json
2020-07-30T11:16:42.375447992Z header: server: envoy
2020-07-30T11:16:42.375453824Z header: date: Thu, 30 Jul 2020 11:16:42 GMT
2020-07-30T11:16:42.375459406Z header: content-length: 178
2020-07-30T11:16:42.375464639Z header: x-envoy-upstream-service-time: 2
2020-07-30T11:16:42.375476108Z DEBUG:urllib3.connectionpool:http://details:9080 "GET /details/0 HTTP/1.1" 200 178
2020-07-30T11:16:42.381721617Z DEBUG:urllib3.connectionpool:Starting new HTTP connection (1): reviews:9080
2020-07-30T11:16:42.405355084Z send: b'GET /reviews/0 HTTP/1.1\r\nHost: reviews:9080\r\nUser-Agent: curl/7.69.1\r\nAccept-Encoding: gzip, deflate\r\nConnection: keep-alive\r\n'
2020-07-30T11:16:42.405433863Z reply: 'HTTP/1.1 200 OK\r\n'
2020-07-30T11:16:42.405448935Z header: x-powered-by: Servlet/3.1
2020-07-30T11:16:42.405460439Z header: content-type: application/json
2020-07-30T11:16:42.405465651Z header: date: Thu, 30 Jul 2020 11:16:42 GMT
2020-07-30T11:16:42.405469673Z header: content-language: en-US
2020-07-30T11:16:42.405473554Z header: content-length: 375
2020-07-30T11:16:42.405477333Z header: x-envoy-upstream-service-time: 23
2020-07-30T11:16:42.405481162Z header: server: envoy
2020-07-30T11:16:42.405485055Z DEBUG:urllib3.connectionpool:http://reviews:9080 "GET /reviews/0 HTTP/1.1" 200 375
2020-07-30T11:16:42.408844643Z INFO:werkzeug::ffff:127.0.0.1 - - [30/Jul/2020 11:16:42] "GET /productpage HTTP/1.1" 200 -

```

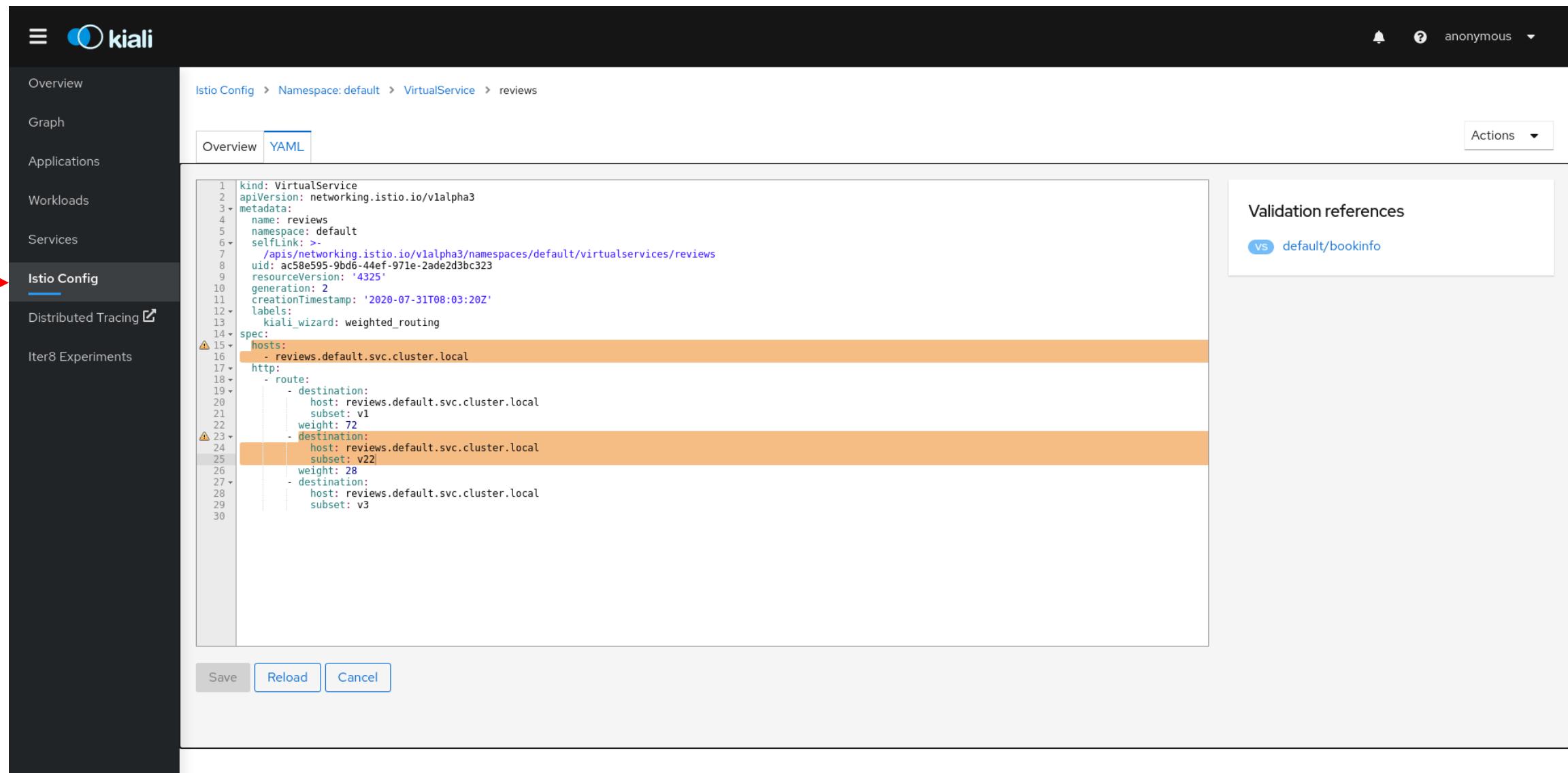
Istio proxy (sidecar)

```

2020-07-30T11:14:32.679414125Z [2020-07-30T11:14:31.642Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 5179 39 38 "172.17.0.1"
2020-07-30T11:14:42.679812613Z [2020-07-30T11:14:41.693Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 2 1 "-" "curl/7.69.
2020-07-30T11:14:42.679849103Z [2020-07-30T11:14:41.699Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 295 5 5 "-" "curl/7.69.
2020-07-30T11:14:42.679857866Z [2020-07-30T11:14:41.675Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 4183 31 31 "172.17.0.1
2020-07-30T11:14:52.679214084Z [2020-07-30T11:14:51.738Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 2 2 "-" "curl/7.69.
2020-07-30T11:14:52.679243337Z [2020-07-30T11:14:51.746Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 379 14 13 "-" "curl/7.69.
2020-07-30T11:14:52.679263756Z [2020-07-30T11:14:51.731Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 5183 31 38 "172.17.0.1
2020-07-30T11:15:02.679184224Z [2020-07-30T11:15:01.796Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 3 3 "-" "curl/7.69.
2020-07-30T11:15:02.679224647Z [2020-07-30T11:15:01.883Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 379 20 26 "-" "curl/7.69.
2020-07-30T11:15:02.679232336Z [2020-07-30T11:15:01.788Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 5183 38 38 "172.17.0.1
2020-07-30T11:15:12.679541832Z [2020-07-30T11:15:11.843Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 3 2 "-" "curl/7.69.
2020-07-30T11:15:12.679577232Z [2020-07-30T11:15:11.851Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 375 20 19 "-" "curl/7.69.
2020-07-30T11:15:12.679587951Z [2020-07-30T11:15:11.837Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 5179 37 36 "172.17.0.1
2020-07-30T11:15:22.679875887Z [2020-07-30T11:15:21.890Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 2 2 "-" "curl/7.69.
2020-07-30T11:15:22.679906211Z [2020-07-30T11:15:21.897Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 375 27 27 "-" "curl/7.69.
2020-07-30T11:15:22.679912509Z [2020-07-30T11:15:21.886Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 5179 41 41 "172.17.0.1
2020-07-30T11:15:32.679151204Z [2020-07-30T11:15:31.941Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 1 1 "-" "curl/7.69.
2020-07-30T11:15:32.679187306Z [2020-07-30T11:15:31.945Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 295 6 6 "-" "curl/7.69.
2020-07-30T11:15:32.679193778Z [2020-07-30T11:15:31.937Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 4183 16 16 "172.17.0.1
2020-07-30T11:15:42.680128432Z [2020-07-30T11:15:41.982Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 2 1 "-" "curl/7.69.
2020-07-30T11:15:42.680256114Z [2020-07-30T11:15:41.988Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 295 13 13 "-" "curl/7.69.
2020-07-30T11:15:42.680278696Z [2020-07-30T11:15:41.975Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 4183 29 28 "172.17.0.1
2020-07-30T11:15:52.679886246Z [2020-07-30T11:15:52.031Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 4 3 "-" "curl/7.69.
2020-07-30T11:15:52.67988526Z [2020-07-30T11:15:52.047Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 379 22 22 "-" "curl/7.69.
2020-07-30T11:15:52.679908669Z [2020-07-30T11:15:52.022Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 5183 51 58 "172.17.0.1
2020-07-30T11:16:02.679530269Z [2020-07-30T11:16:02.097Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 6 6 "-" "curl/7.69.
2020-07-30T11:16:02.679595249Z [2020-07-30T11:16:02.111Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 375 48 48 "-" "curl/7.69.
2020-07-30T11:16:02.679605879Z [2020-07-30T11:16:02.088Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 5179 78 78 "172.17.0.1
2020-07-30T11:16:12.679454782Z [2020-07-30T11:16:12.189Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 3 3 "-" "curl/7.69.
2020-07-30T11:16:12.679535941Z [2020-07-30T11:16:12.198Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 295 5 5 "-" "curl/7.69.
2020-07-30T11:16:12.679556478Z [2020-07-30T11:16:12.181Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 4183 24 24 "172.17.0.1
2020-07-30T11:16:22.680270118Z [2020-07-30T11:16:22.230Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 4 3 "-" "curl/7.69.
2020-07-30T11:16:22.68033751Z [2020-07-30T11:16:22.238Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 379 39 39 "-" "curl/7.69.
2020-07-30T11:16:22.680345445Z [2020-07-30T11:16:22.242Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 5183 56 55 "172.17.0.1
2020-07-30T11:16:32.680462515Z [2020-07-30T11:16:32.314Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 3 3 "-" "curl/7.69.
2020-07-30T11:16:32.68054314Z [2020-07-30T11:16:32.322Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 379 15 15 "-" "curl/7.69.
2020-07-30T11:16:32.680565247Z [2020-07-30T11:16:32.306Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 5183 34 33 "172.17.0.1
2020-07-30T11:16:42.681140169Z [2020-07-30T11:16:42.376Z] "GET /details/0 HTTP/1.1" 200 - "-" "-" 0 178 3 2 "-" "curl/7.69.
2020-07-30T11:16:42.681246969Z [2020-07-30T11:16:42.380Z] "GET /reviews/0 HTTP/1.1" 200 - "-" "-" 0 375 23 23 "-" "curl/7.69.
2020-07-30T11:16:42.6801267994Z [2020-07-30T11:16:42.362Z] "GET /productpage HTTP/1.1" 200 - "-" "-" 0 5179 46 46 "172.17.0.1

```

## Istio Config



The screenshot shows the Kiali interface for managing Istio configurations. A red arrow points to the 'Istio Config' tab in the left sidebar.

The main view displays the YAML configuration for a VirtualService named 'reviews' in the 'default' namespace. The configuration defines two hosts: 'reviews.default.svc.cluster.local' (subset v1, weight 72) and 'reviews.default.svc.cluster.local' (subset v2, weight 28). Both hosts point to the same destination: 'reviews.default.svc.cluster.local' (subset v3).

```
kind: VirtualService
apiVersion: networking.istio.io/v1alpha3
metadata:
  name: reviews
  namespace: default
  selfLink: >
    /apis/networking.istio.io/v1alpha3/namespaces/default/virtualservices/reviews
  uid: ac50e595-9bd6-44ef-971e-2ade2d3bc323
  resourceVersion: '4325'
  generation: 2
  creationTimestamp: '2020-07-31T08:03:20Z'
  labels:
    kiali_wizard: weighted_routing
spec:
  hosts:
    - reviews.default.svc.cluster.local
    http:
      - route:
          - destination:
              host: reviews.default.svc.cluster.local
              subset: v1
              weight: 72
          - destination:
              host: reviews.default.svc.cluster.local
              subset: v2
              weight: 28
          - destination:
              host: reviews.default.svc.cluster.local
              subset: v3
```

Below the code editor are three buttons: 'Save', 'Reload', and 'Cancel'.

A validation reference section on the right shows a comparison against the 'default/bookinfo' configuration.



# Istio Wizards

The screenshot shows the Kiali interface with a red arrow pointing to the 'Services' menu item in the sidebar. A modal window titled 'Create Traffic Shifting' is open in the center, displaying traffic distribution settings for three workloads: reviews-v1, reviews-v2, and reviews-v3. The reviews-v1 and reviews-v2 workloads each receive 45% of the traffic, while reviews-v3 receives 10%. The 'Actions' dropdown menu on the right is circled in red, highlighting options like 'Routing', 'Connection', 'Traffic Shifting', 'Timeouts', and 'Traffic Routing'.

Create Traffic Shifting

Workload	Traffic Weight
reviews-v1	45
reviews-v2	45
reviews-v3	10

Evenly distribute traffic

Cancel Create

Actions ▾

- Routing
- Connection
- Traffic Shifting
- Timeouts
- Traffic Routing

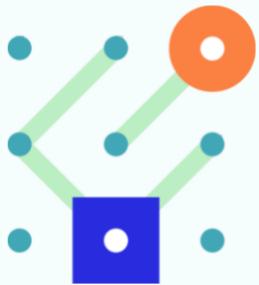


{KODE}{CLOUD}

# A QUICK NOTE ON SERVICE MESH INTERFACE



# Service Mesh Interface



A standard interface for service meshes on Kubernetes.

**Service Mesh Interface provides:**

- A standard interface for service meshes on Kubernetes
- A basic feature set for the most common service mesh use cases
- Flexibility to support new service mesh capabilities over time
- Space for the ecosystem to innovate with service mesh technology

[View the Spec](#)

# Service Mesh Interface



NGINX Service Mesh.

In partnership with



LAYERS



<https://github.com/servicemeshinterface/smi-spec>

Pivotal

vmware®



CANONICAL

kubecost

ODEKLOUD



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# CONCLUSION





Thank You!



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