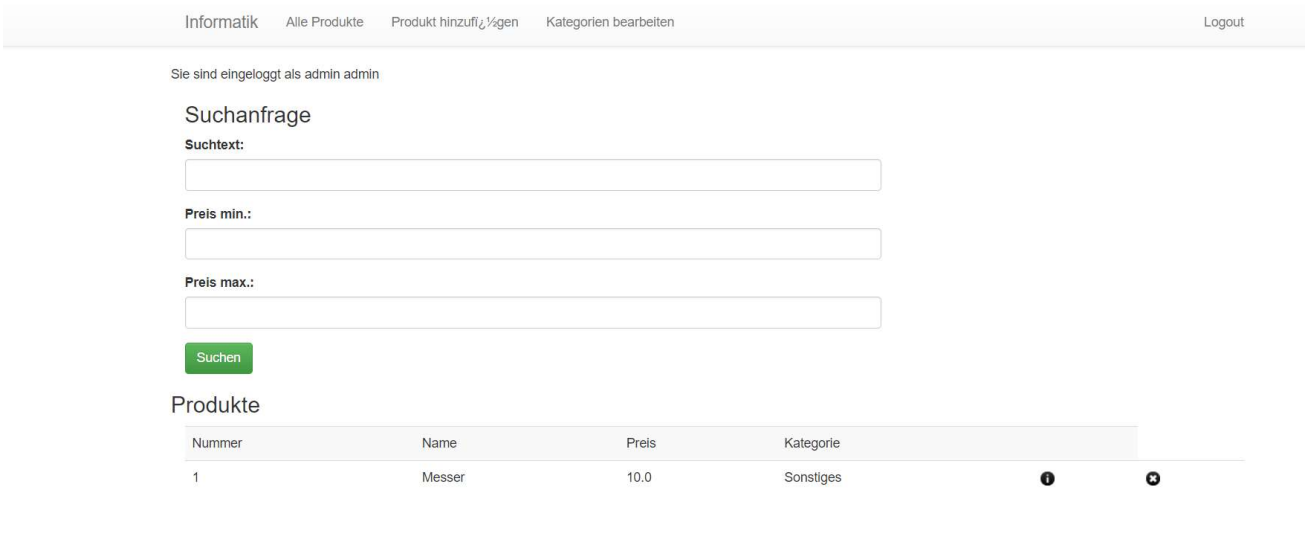
Report.md

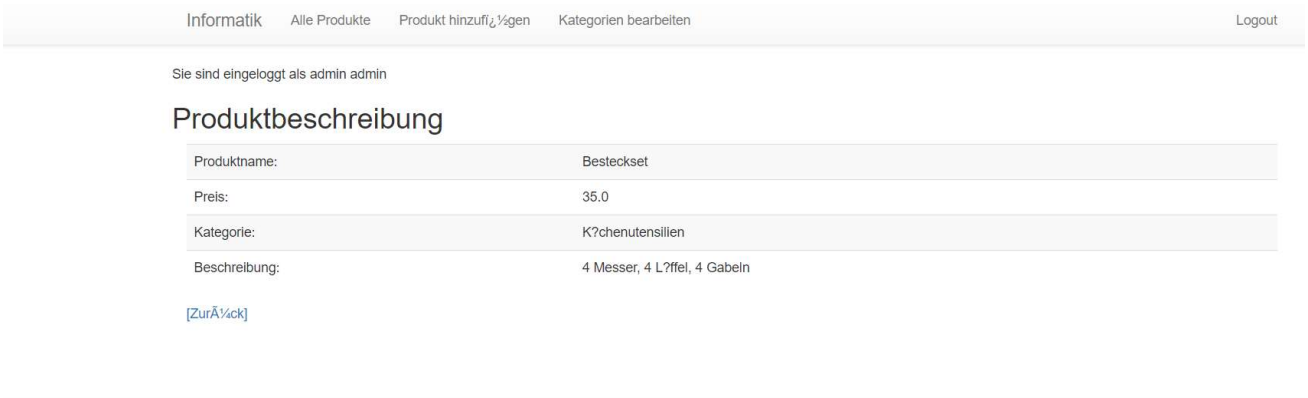
VS-Lab - eShop Report

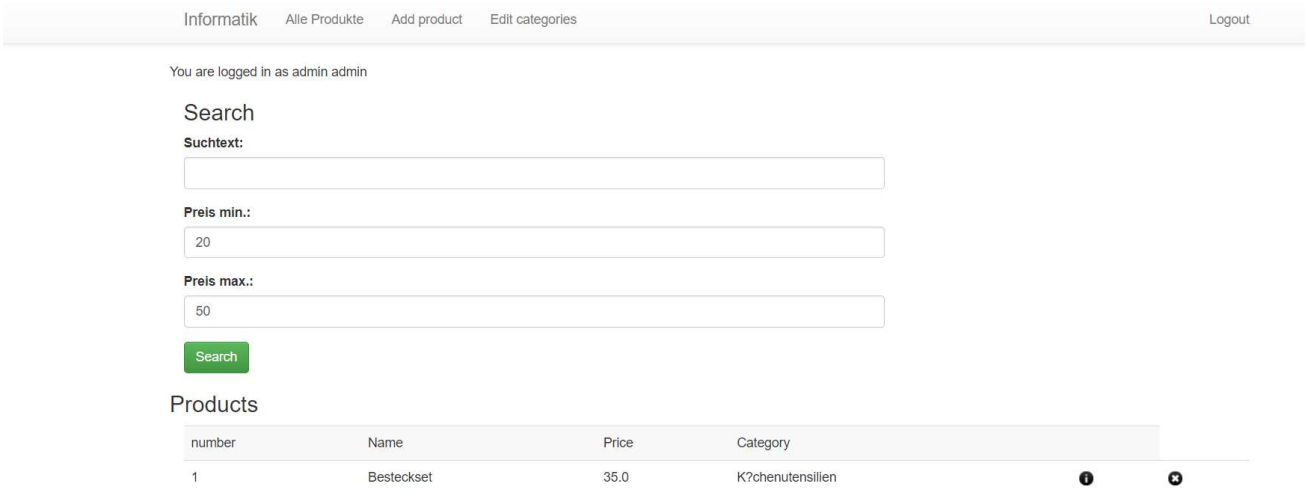
```
Gruppe(IZ-Kürzel): krse1019, krse1020, rufl1020, wigo1011
```

Aufgabe 1

1. Aufgabe



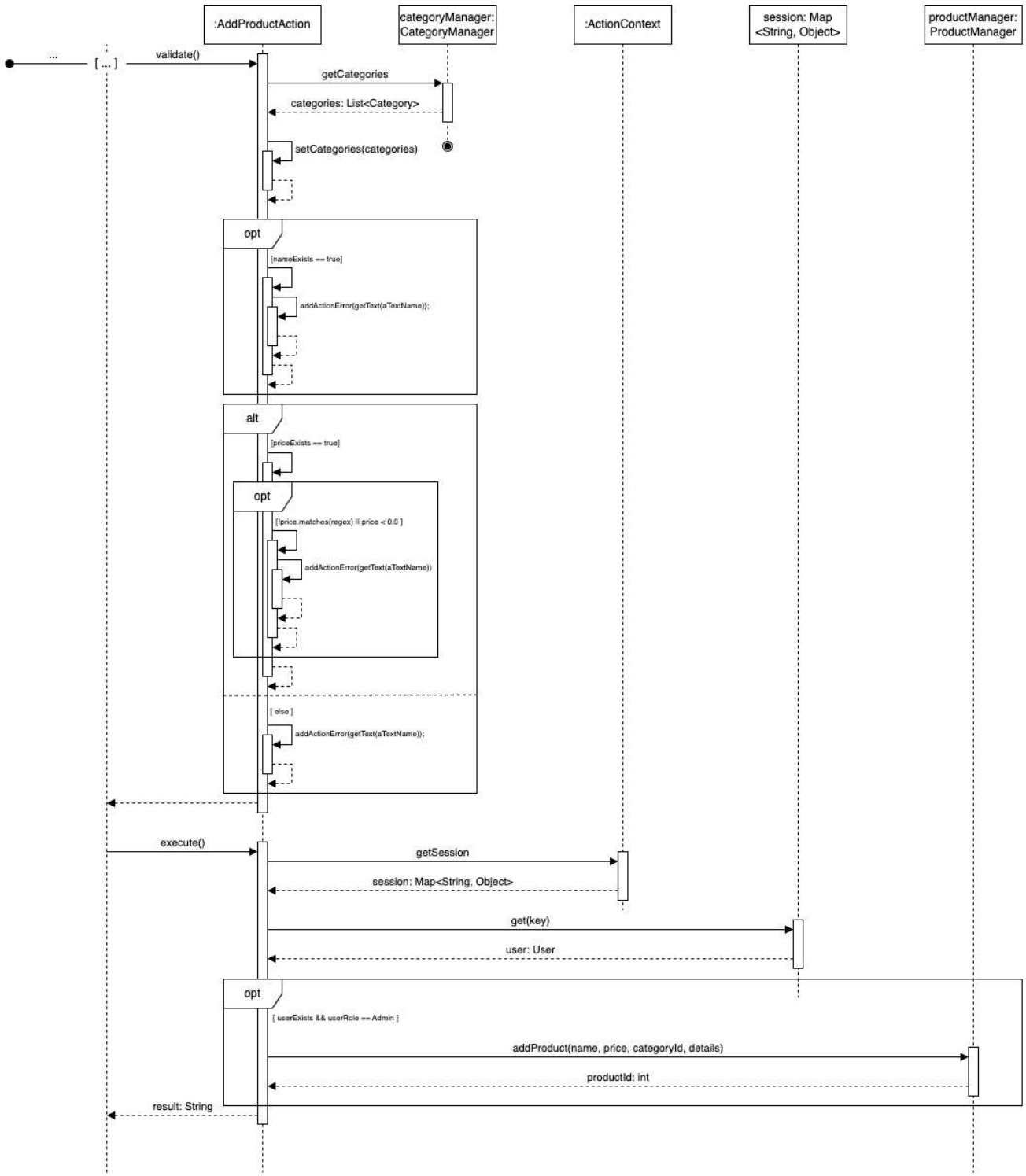




Class Diagram

2. Aufgabe

> Analysieren sie Struktur und Verhalten des eShop --> c - Erstellen sie ein UML Strukturdiagramm (zB Klassendiagramm) und ein UML Verhaltens- diagramm (zB Sequenzdiagramm).



3. Aufgabe

> Erstellen sie ein fachliches Makro-modell des eShop mit DDD --> e - Diskutieren sie die Auswahl eines Bounded Context für die Migration als Microservice.

Suche
Produktname Preis

Hinzufügen/Löschen Produkte
Name Preis Kategorie Beschreibung

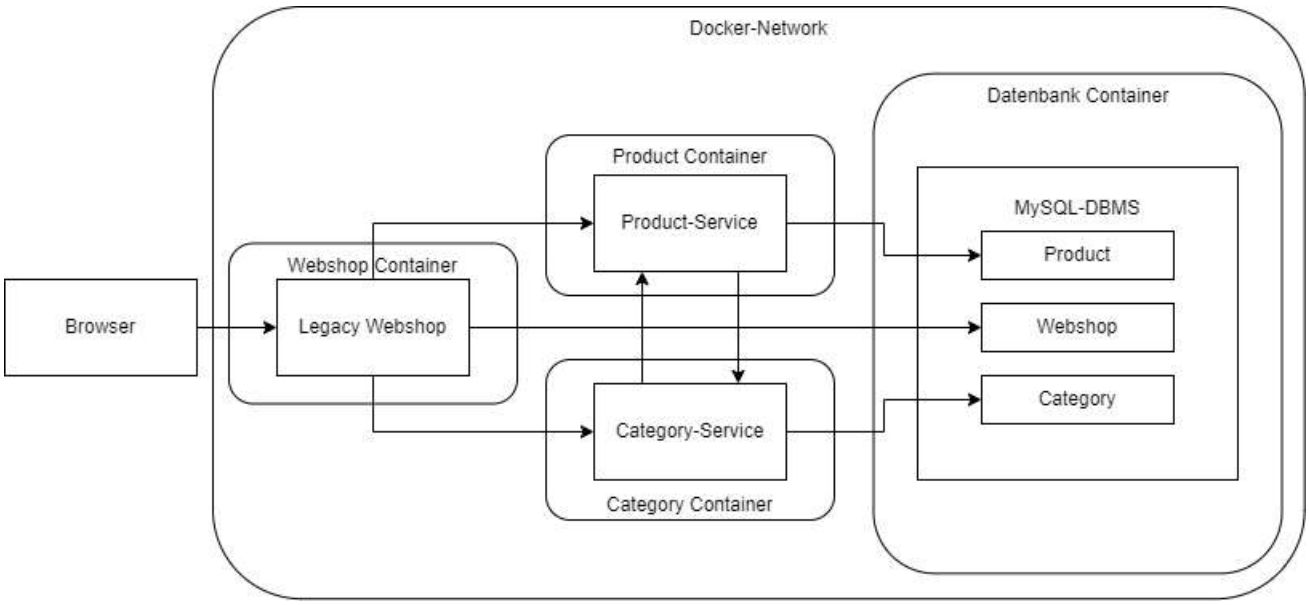
Hinzufügen/Löschen Kategorie
Name

Es ist sinnvoll einen Bounded Context zu migrieren, weil dieser einen in sich geschlossene Domäne repräsentiert und somit keine Überschneidung mit Komponenten aus dem Legacy System hat.

Wenn man sich das Strangler pattern als Vorgehen aussucht, wäre es am sinnvollsten die Komponenten zu migrieren, die am häufigsten von den Entwicklern geändert werden müssen. Komponenten die vielleicht gar nicht mehr geändert werden müssen, können sogar in manchen Szenarien als Legacy System bestehen bleiben. So oder so muss wenn die Migration Schrittweise erfolgt eine Schnittstelle zwischen legacy System und den neuen Microservices geschaffen werden.

Aufgabe 2

Architekturskizze des Webshops in Docker-Containern.



Augabe 3

In diesem Abschnitt finden Sie Screenshots zu den verschiedenen Frontends und der Arbeit des Load-Balancers.

Minikube und Docker images

- Ausgabe der Liste aller Docker images auf dem System

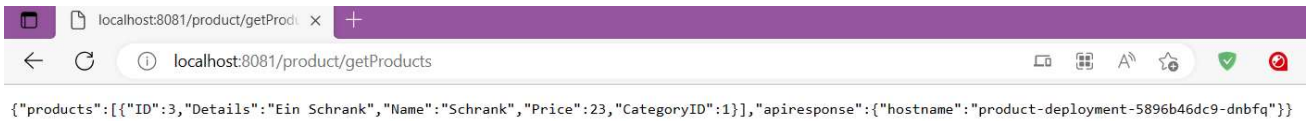
```
PS F:\Uni\Master\Semester 3\vsLab\hska-vis-legacy> docker images
REPOSITORY                                TAG                 IMAGE ID       CREATED          SIZE
mavogel/hska-vis-legacywebshop            latest              a1d11d194f9c   19 minutes ago   162MB
mavogel/hska-vis-web-shop-db-image        latest              0b9111d9b0d0   30 minutes ago   360MB
apache                                    latest              0a3ce96cdc83   31 minutes ago   223MB
category                                  latest              e1c68b212385   32 minutes ago   1GB
product                                   latest              65f68a874e49   32 minutes ago   1GB
golang                                    1.19                aa2a9b347a08   21 hours ago     992MB
ubuntu                                    20.04               88bd68917189   5 weeks ago      72.8MB
istio/proxyv2                             1.17.1              8773d9508106   3 months ago     256MB
istio/pilot                               1.17.1              699d9171558c   3 months ago     198MB
quay.io/kiali/kiali                       v1.63               361c13ca69bc   3 months ago     106MB
registry.k8s.io/kube-apiserver            v1.26.1             deb04688c4a3   4 months ago     134MB
registry.k8s.io/kube-scheduler            v1.26.1             655493523f60   4 months ago     56.3MB
registry.k8s.io/kube-controller-manager   v1.26.1             e9c08e11b07f   4 months ago     124MB
registry.k8s.io/kube-proxy                v1.26.1             46a6bb3c77ce   4 months ago     65.6MB
registry.k8s.io/etcd                      3.5.6-0             fce326961ae2   6 months ago     299MB
registry.k8s.io/pause                     3.9                 e6f181688397   7 months ago     744kB
grafana/grafana                           9.0.1               b6f09c63d6ec   11 months ago    292MB
jaegertracing/all-in-one                  1.35                9d3f84f2ca38   11 months ago    59.9MB
registry.k8s.io/coredns/coredns           v1.9.3              5185b96f0bec   12 months ago    48.8MB
prom/prometheus                           v2.34.0             e3cf894a63f5   14 months ago    205MB
registry.k8s.io/pause                     3.6                 6270bb605e12   21 months ago    683kB
gcr.io/k8s-minikube/storage-provisioner   v5                  6e38f40d628d   2 years ago      31.5MB
jimmidyson/configmap-reload               v0.5.0              d771cc9785a1   2 years ago      9.99MB
maven                                     3.5.4-jdk-8-alpine  fb4bb0d89941   4 years ago      119MB
tomcat                                    8.0-alpine          624fb61775c3   4 years ago      147MB
mysql                                     5.7.9               ec7e75e5260c   7 years ago      360MB
PS F:\Uni\Master\Semester 3\vsLab\hska-vis-legacy>
```

- oAusgabe der Liste aller Kubernetes Pods aus dem Minikube

```
PS F:\Uni\Master\Semester 3\vsLab\hska-vis-legacy> kubectl get pods -A
NAMESPACE      NAME                                      READY   STATUS    RESTARTS      AGE
default        apache-58cf6d5f4b-2jmvh                   2/2     Running   2 (24m ago)   30m
default        category-deployment-784c74cbfb-zffv2      2/2     Running   2 (24m ago)   30m
default        database-deployment-598cc6b7fc-qglcj      2/2     Running   2 (24m ago)   30m
default        legacywebshop-deployment-dd66dd6d8-zsw2p  2/2     Running   0             19m
default        product-deployment-774cbd9867-2ldvn       2/2     Running   2 (24m ago)   30m
default        product-deployment-774cbd9867-rfsh1       2/2     Running   2 (24m ago)   30m
default        product-deployment-774cbd9867-zng7j       2/2     Running   2 (24m ago)   30m
istio-system   grafana-69f9b6bfdc-w6tkr                  1/1     Running   1 (25m ago)   29m
istio-system   istio-ingressgateway-6f86b8c88d-g45xf     1/1     Running   1 (24m ago)   31m
istio-system   istiod-79d65bf5f4-nvqbn                   1/1     Running   1 (25m ago)   31m
istio-system   jaeger-cc4688b98-rwvz7                    1/1     Running   1 (25m ago)   29m
istio-system   kiali-594965b98c-bm764                    1/1     Running   1 (25m ago)   29m
istio-system   prometheus-5f84bbfcfd-tvhv4               2/2     Running   2 (25m ago)   29m
kube-system    coredns-787d4945fb-qcx96                  1/1     Running   1 (24m ago)   34m
kube-system    etcd-minikube                             1/1     Running   1 (25m ago)   34m
kube-system    kube-apiserver-minikube                   1/1     Running   1 (25m ago)   34m
kube-system    kube-controller-manager-minikube          1/1     Running   1 (25m ago)   34m
kube-system    kube-proxy-r8gzf                          1/1     Running   1 (25m ago)   34m
kube-system    kube-scheduler-minikube                   1/1     Running   1 (25m ago)   34m
kube-system    storage-provisioner                       1/1     Running   1 (25m ago)   34m
```

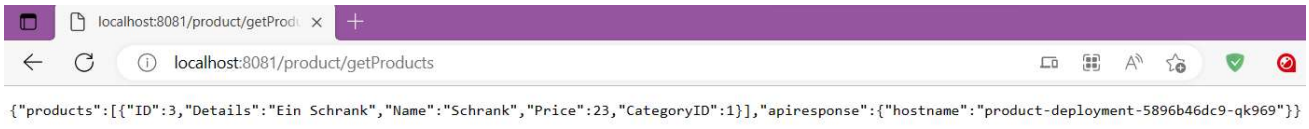
Load-Balancer

1. Erster ProductRequest



{"products":[{"ID":3,"Details":"Ein Schrank","Name":"Schrank","Price":23,"CategoryID":1}],"apiresponse":{"hostname":"product-deployment-5896b46dc9-dnbfq"}}

2. Zweiter ProductRequest

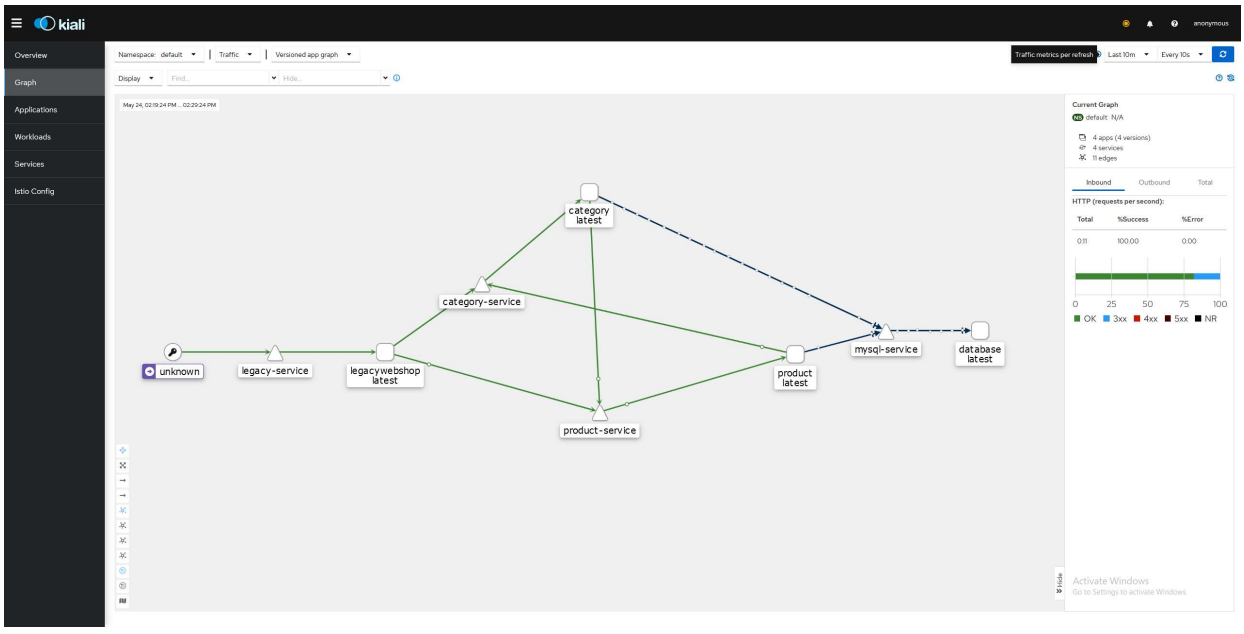


3. Dritter ProductRequest

Alle Hostnamen sind unterschiedlich! -> Der Load-Balancer funktioniert wie erwartet.

Kiali und Grafana Dashboards

- Screenshot von Kiali nach Generierung von Traffic auf dem Webshop



- Schreenshot von Grafana(istio-control-plane-dashboard) nach Generierung von Traffic auf dem Webshop

Aufgabe 4

Performancetest Ergebnisse der Responsetime der verschiedenen Requests.

```
Response Time for getCategories: 173
Response Time for getCategories: 15
Response Time for getCategories: 9
Response Time for getCategories: 10
Response Time for addCategory: 14
Response Time for getCategories: 22
Response Time for getCategories: 9
Response Time for getCategories: 8
Response Time for getCategories: 7
Response Time for addCategory: 8
Response Time for getCategories: 7
Response Time for getCategories: 8
Response Time for addCategory: 7
Response Time for getCategories: 7
Response Time for getCategories: 7
Response Time for addCategory: 8
Response Time for getCategories: 6
Response Time for getCategories: 8
Response Time for addCategory: 7
Response Time for getCategories: 6
Response Time for getCategories: 7
Response Time for addCategory: 7
Response Time for getCategories: 6
Response Time for getCategories: 8
Response Time for addCategory: 7
Response Time for getCategories: 5
Response Time for getCategories: 7
Response Time for getCategories: 7
Response Time for getCategory: 6
Response Time for getCategory: 6
Response Time for getProductByName: 13
Response Time for addProduct: 71
list all products!
Response Time for getCategory: 6
Response Time for getProducts: 26
Response Time for getCategories: 8
Response Time for getCategories: 7
Response Time for getCategory: 6
Response Time for getCategory: 6
Response Time for getProductByName: 13
Response Time for addProduct: 53
list all products!
Response Time for getCategory: 7
Response Time for getCategory: 6
Response Time for getProducts: 28
Response Time for deleteProductById: 8
list all products!
Response Time for getCategory: 6
Response Time for getProducts: 13
Response Time for getCategories: 8
Response Time for delCategoryById: 29
Response Time for getCategories: 5
```

```
Response Time for getProductById: 4
Response Time for getCategory: 6
Response Time for getCategories: 6
Response Time for delCategoryById: 28
Response Time for getCategories: 6
Response Time for getCategories: 7
Response Time for getCategories: 6
Response Time for getCategory: 6
Response Time for getCategory: 5
Response Time for getProductByName: 12
Response Time for addProduct: 37
list all products!
Response Time for getCategory: 6
Response Time for getProducts: 12
Response Time for getCategories: 6
Response Time for getCategories: 6
Response Time for getCategory: 6
Response Time for getCategory: 6
Response Time for getProductByName: 13
Response Time for addProduct: 31
list all products!
Response Time for getCategory: 6
Response Time for getCategory: 6
Response Time for getProducts: 18
```

Avarage Response-Time

Action	Called Action	Avg. Response Time
open add-Product Tab	getCategories()	6ms
add new product	addProduct()	35ms
list all products	getProducts()	45ms
edit categories	getCategories()	5ms
add new category	addCategory()	8ms
delete category	delCategoryById()	14ms
delete product	deleteProductById()	8ms
search product	getProductForSearchValues()	13ms