Testing User Workloads in a Kubernetes Deployment: Robot-Shop

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Introduction

What did we want to learn?

We are aware that using **containers** is ideal to ship different services.

In combination with the Cloud they make for **easy deployment and testing**.

We want to observe how these kind of applications when under different **workloads**.

A sandbox.

What is Robot-Shop?

Stan's Robot Shop is a sample microservice application you can use as a sandbox to test and learn containerised application orchestration and monitoring techniques.

We chose it due to not wanting to spend too much time on development.

Rather test the deployment and run tests.

Objectives

What did we want to learn?

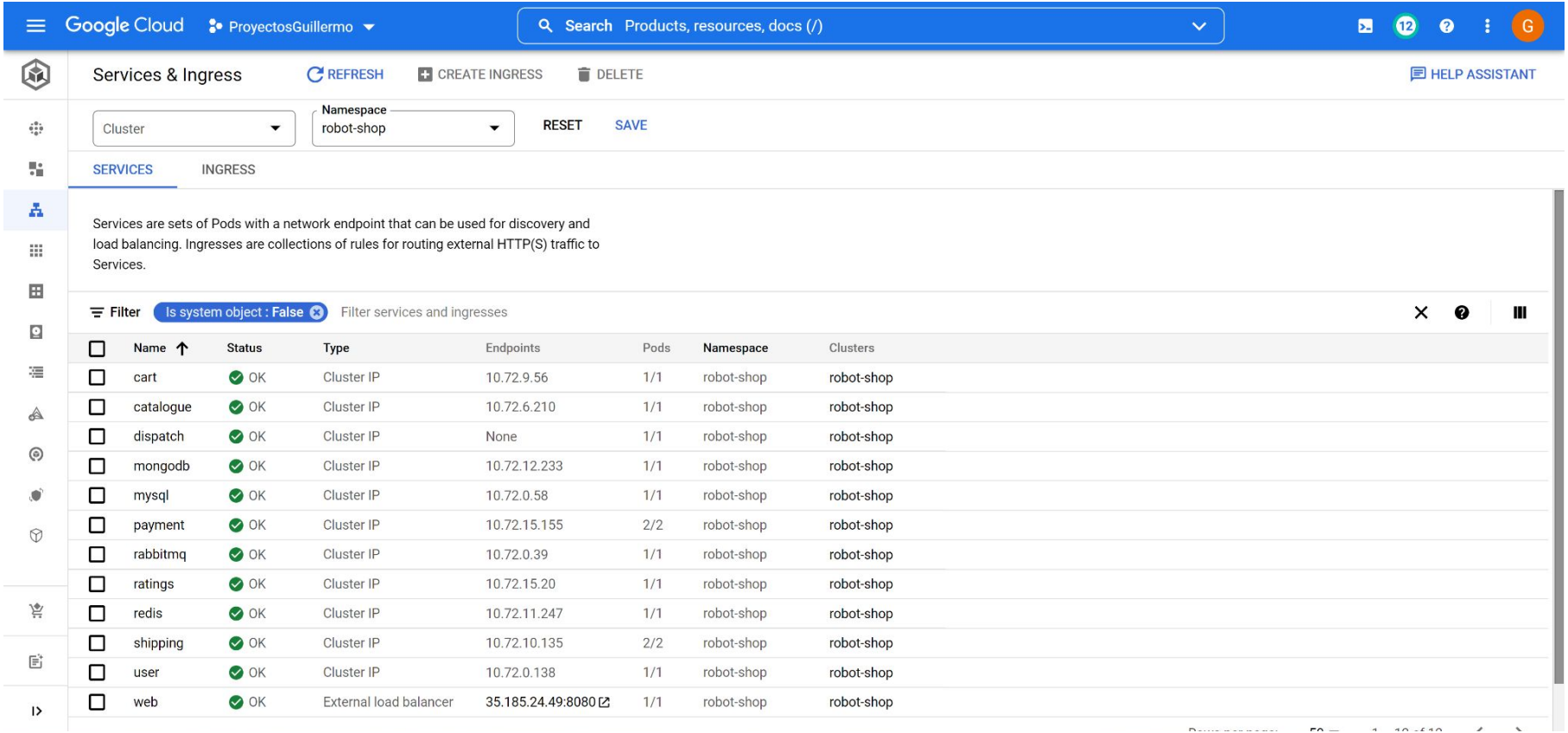
As a **general** objective:

Observe how a multi-service application manages different amounts of users in a kubernetes environment

This was achieved through the following **specific** objectives:

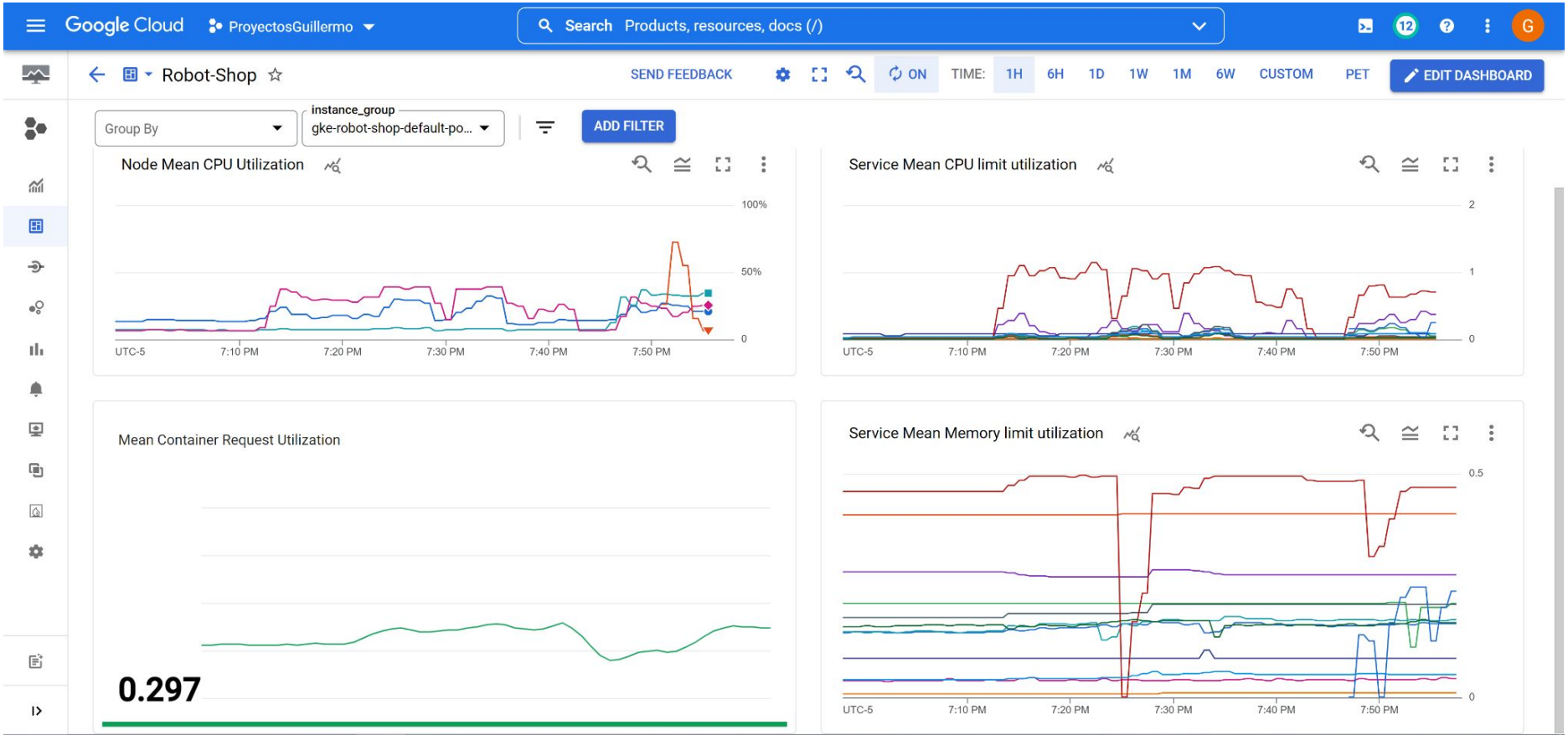
- Deploying a multi-service application in a Cloud environment.
- Simulating different workloads and the auto-scaler.
- Observe their monitoring techniques and perform a visually analysis.

Methodology


Google Cloud
ProyectosGuillermo
Search Products, resources, docs (/)
Services & Ingress
REFRESH
CREATE INGRESS
DELETE
HELP ASSISTANT
Cluster
Namespace
robot-shop
RESET
SAVE
SERVICES
INGRESS
Services are sets of Pods with a network endpoint that can be used for discovery and load balancing. Ingresses are collections of rules for routing external HTTP(S) traffic to Services.
Filter
Is system object : False
Filter services and ingresses
Name
Status
Type
Endpoints
Pods
Namespace
Clusters
cart OK Cluster IP 10.72.9.56 1/1 robot-shop robot-shop
catalogue OK Cluster IP 10.72.6.210 1/1 robot-shop robot-shop
dispatch OK Cluster IP None 1/1 robot-shop robot-shop
mongodb OK Cluster IP 10.72.12.233 1/1 robot-shop robot-shop
mysql OK Cluster IP 10.72.0.58 1/1 robot-shop robot-shop
payment OK Cluster IP 10.72.15.155 2/2 robot-shop robot-shop
rabbitmq OK Cluster IP 10.72.0.39 1/1 robot-shop robot-shop
ratings OK Cluster IP 10.72.15.20 1/1 robot-shop robot-shop
redis OK Cluster IP 10.72.11.247 1/1 robot-shop robot-shop
shipping OK Cluster IP 10.72.10.135 2/2 robot-shop robot-shop
user OK Cluster IP 10.72.0.138 1/1 robot-shop robot-shop
web OK External load balancer 35.185.24.49:8080 1/1 robot-shop robot-shop

```
guillermo_franco@cloudshell:~/robot-shop/load-gen (proyectosguillermo)$ ./load-gen.sh -n 20 -t 5m -d
Repo robotshop
Tag 2.1.0
Running 20 clients
Run time set to 5m
e1e5634cf53ddc82cba9beefe80f5445b1d4b7144d600045f923284c28a80839
guillermo_franco@cloudshell:~/robot-shop/load-gen (proyectosguillermo)$
```

Results


Google Cloud
ProyectosGuillermo
Search Products, resources, docs (/)
Robot-Shop
SEND FEEDBACK
ON
TIME:
1H
6H
1D
1W
1M
6W
CUSTOM
PET
EDIT DASHBOARD
Group By
instance_group
gke-robot-shop-default-po...
ADD FILTER
Node Mean CPU Utilization
100%
50%
0
UTC-5
7:10 PM
7:20 PM
7:30 PM
7:40 PM
7:50 PM
Service Mean CPU limit utilization
2
1
0
Mean Container Request Utilization
0.297
Service Mean Memory limit utilization
0.5
0