DESPLIEGUE DE SERVICIO WEB

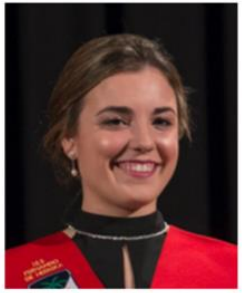
EQUIPO

Pablo Reina Jiménez

María Lourdes Linares Barrera

Paula Gómez Matos

Francisco Javier Galán Sales



Rocío Goñi Medina

José Calderón Valdivia

Ana Ruiz López

Ana Casado Sanchez

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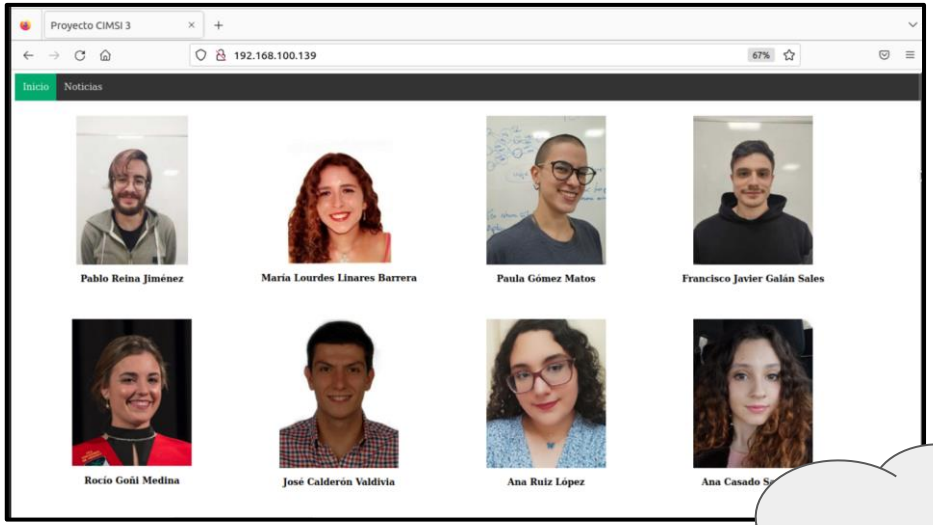
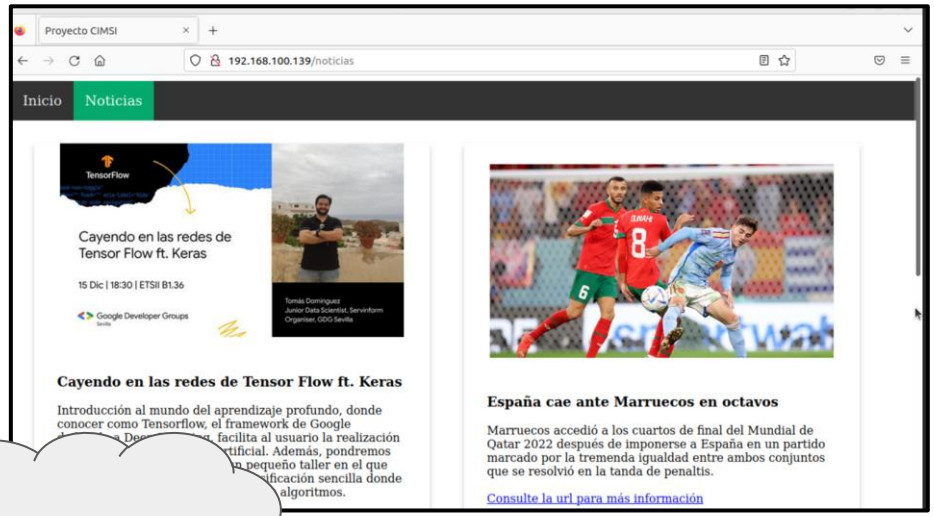
INTRODUCCIÓN

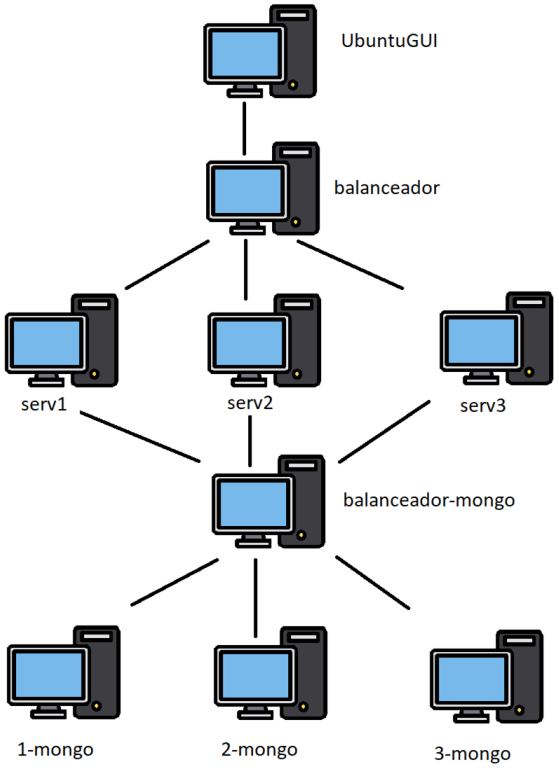


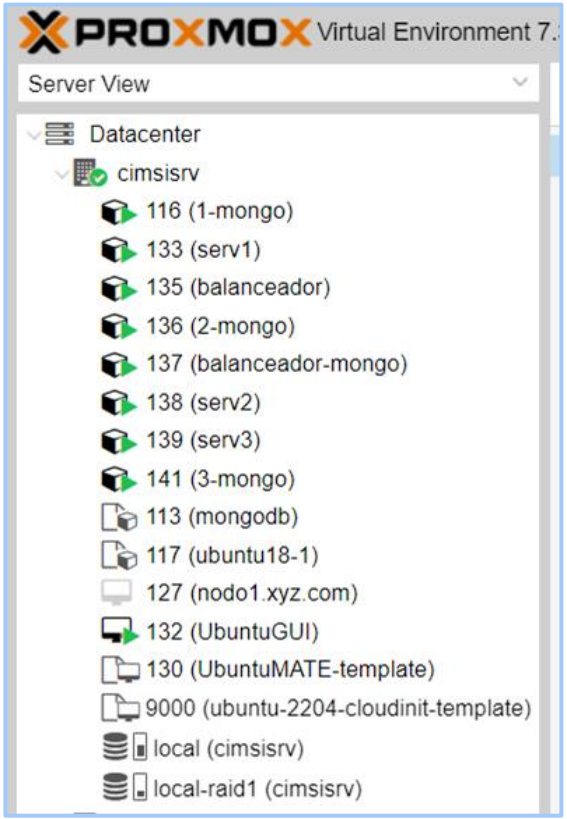


DESPLIEGUE EN LA NUBE

TECNOLOGÍA

ARQUITECTURA





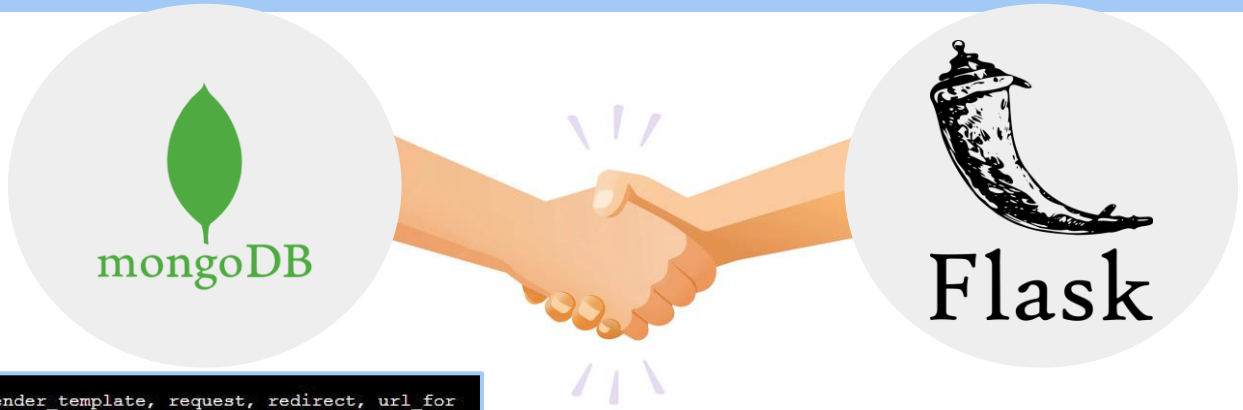
ARQUITECTURA

```
root@2-mongo ~# mongo
MongoDB shell version v4.4.4
connecting to: mongodb://127.0.0.1:27017/?compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("e6d7336a-1c7d-431c-b93c-3a92bebcdc27") }
MongoDB server version: 4.4.4
---
The server generated these startup warnings when booting:
        2022-12-16T12:58:19.068+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb
.org/core/prodnotes-filesystem
        2022-12-16T12:58:20.777+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricte
d
---
> show dbs
admin      0.000GB
config     0.000GB
database   0.000GB
local      0.000GB
> show collections
> use database
switched to db database
> show collections
noticias
```

Documentos

```
> db.noticias.find()
{ "_id" : "3", "title" : "Cayendo en las redes de Tensor Flow ft. Keras", "date" : "13/12/2022", "photo" : "https://pbs.twimg.com/media/FjuBXWlXgAwJR
8z?format=jpg&name=small", "description" : "Introducción al mundo del aprendizaje profundo, donde conocer como Tensorflow, el framework de Google ded
icado a Deep Learning, facilita al usuario la realización de modelos de inteligencia artificial. Además, pondremos en práctica lo aprendido con un pe
queño taller en el que llevaremos a cabo una tarea de clasificación sencilla donde entender mejor como funcionan estos algoritmos.", "url" : "https:/
/gdg.community.dev/events/details/google-gdg-sevilla-presents-cayendo-en-las-redes-de-tensorflow-ft-keras/" }
{ "_id" : "0", "title" : "España cae ante Marruecos en octavos", "date" : "10/12/2022", "photo" : "https://images.daznservices.com/di/library/DAZN_Ne
ws/c/23/marruecos-espana-mundial-2022_d0ehoapv4fpx1gw7hmu0hujao.jpg?t=-400690756", "description" : "Marruecos accedió a los cuartos de final del Mund
ial de Qatar 2022 después de imponerse a España en un partido marcado por la tremenda igualdad entre ambos conjuntos que se resolvió en la tanda de p
enaltis.", "url" : "https://www.dazn.com/es-ES/news/f%C3%BAtbol/marruecos-vs-espana-octavos-final-mundial-qatar-2022-goles-resumen-highlights/eljbfk2
j4x1c1wt7o4dcm5dz6" }
{ "_id" : "1", "title" : "La UE impondrá un arancel climático para gravar el CO2 de las importaciones", "date" : "11/12/2022", "photo" : "https://ima
genes.elpais.com/resizer/UKTIBObDLVSnjv2yz3xeFWsV6XU=/1200x0/cloudfront-eu-central-1.images.arcpublishing.com/prisa/OHAHYNU53VAYNH2DEKDREPLIW4.jpg",
"description" : "La nueva tasa afectará a productos como el hierro, el acero, el cemento, el aluminio, los fertilizantes y la electricidad, y se empe
zará a aplicar gradualmente a partir de octubre 2023.", "url" : "https://elpais.com/clima-y-medio-ambiente/2022-12-13/la-ue-impondra-un-arancel-clima
tico-para-gravar-el-co-de-las-importaciones.html" }
{ "_id" : "2", "title" : "No solo leones, osos y gladiadores: los perros salchicha también salían a la arena del Coliseo romano", "date" : "13/12/202
2", "photo" : "https://imagenes.elpais.com/resizer/GSHLPb8uYZa7xfqWyHImhvXUfDw=/1200x0/cloudfront-eu-central-1.images.arcpublishing.com/prisa/LMF5RB4
SMNEJBJDEPAC6ZKE4V4.aspx", "description" : "Una reciente excavación en las alcantarillas del monumento halla restos de varios animales, grandes varie
dades de fruta, monedas e información clave sobre el sistema hidráulico de la época.", "url" : "https://elpais.com/cultura/2022-12-13/no-solo-leones-
osos-y-gladiadores-los-perros-salchicha-tambien-salian-a-la-arena-del-coliseo-romano.html" }
```

ARQUITECTURA




```python
from flask import Flask, render_template, request, redirect, url_for
from database import DataBase
from utils import *
import pymongo

app = Flask(__name__)

def get_bd():
    return DataBase()

@app.route('/')
def hello():
    return render_template('index.html')

@app.route('/noticias')
def noticias():
    db = DataBase().get_collection();
    return render_template('noticias.html', tabla=db.find())

if __name__ == "__main__":
    app.run(debug = True)
```

database.py

```python
import pymongo


class DataBase:
    collection: pymongo.collection.Collection

    def __init__(self):
        myclient = pymongo.MongoClient("mongodb://192.168.100.138",27017)
        db = myclient["database"]
        self.collection = db["noticias"]

    def get_collection(self):
        return self.collection
```

app.py

ALTA DISPONIBILIDAD

```
#!/bin/bash
for i in `seq 1 1 15`;
do
        echo $i
        sleep 10
        ab -n $((2**$i*1000)) -c $((2*$i)) http://192.168.100.139/ >>exp$i.1
        sleep 10
        ab -n $((2**$i*1000)) -c $((2*$i)) http://192.168.100.139/ >>exp$i.2
        sleep 10
        ab -n $((2**$i*1000)) -c $((2*$i)) http://192.168.100.139/ >>exp$i.3
done
```

ALTA DISPONIBILIDAD

```
 GNU nano 6.2                                                    exp3.2
This is ApacheBench, Version 2.3 <$Revision: 1879490 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 192.168.100.139 (be patient)


Server Software:        nginx/1.14.0
Server Hostname:        192.168.100.139
Server Port:            80

Document Path:          /
Document Length:        1380 bytes

Concurrency Level:      6
Time taken for tests:   2.109 seconds
Complete requests:      8000
Failed requests:        0
Total transferred:      12568000 bytes
HTML transferred:       11040000 bytes
Requests per second:    3792.55 [#/sec] (mean)
Time per request:       1.582 [ms] (mean)
Time per request:       0.264 [ms] (mean, across all concurrent requests)
Transfer rate:          5818.45 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    0   0.0      0       1
Processing:     1    1   0.3      1       5
Waiting:        1    1   0.3      1       5
Total:          1    2   0.3      2       5
```

```
 GNU nano 6.2                                                    exp8.2
This is ApacheBench, Version 2.3 <$Revision: 1879490 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 192.168.100.139 (be patient)


Server Software:        nginx/1.14.0
Server Hostname:        192.168.100.139
Server Port:            80

Document Path:          /
Document Length:        1380 bytes

Concurrency Level:      16
Time taken for tests:   125.466 seconds
Complete requests:      256000
Failed requests:        0
Total transferred:      402176000 bytes
HTML transferred:       353280000 bytes
Requests per second:    2040.39 [#/sec] (mean)
Time per request:       7.842 [ms] (mean)
Time per request:       0.490 [ms] (mean, across all concurrent requests)
Transfer rate:          3130.32 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    0   0.1      0       3
Processing:     1    8   4.4      7     131
Waiting:        1    8   4.4      7     131
Total:          1    8   4.4      7     131
```

ESCALABILIDAD

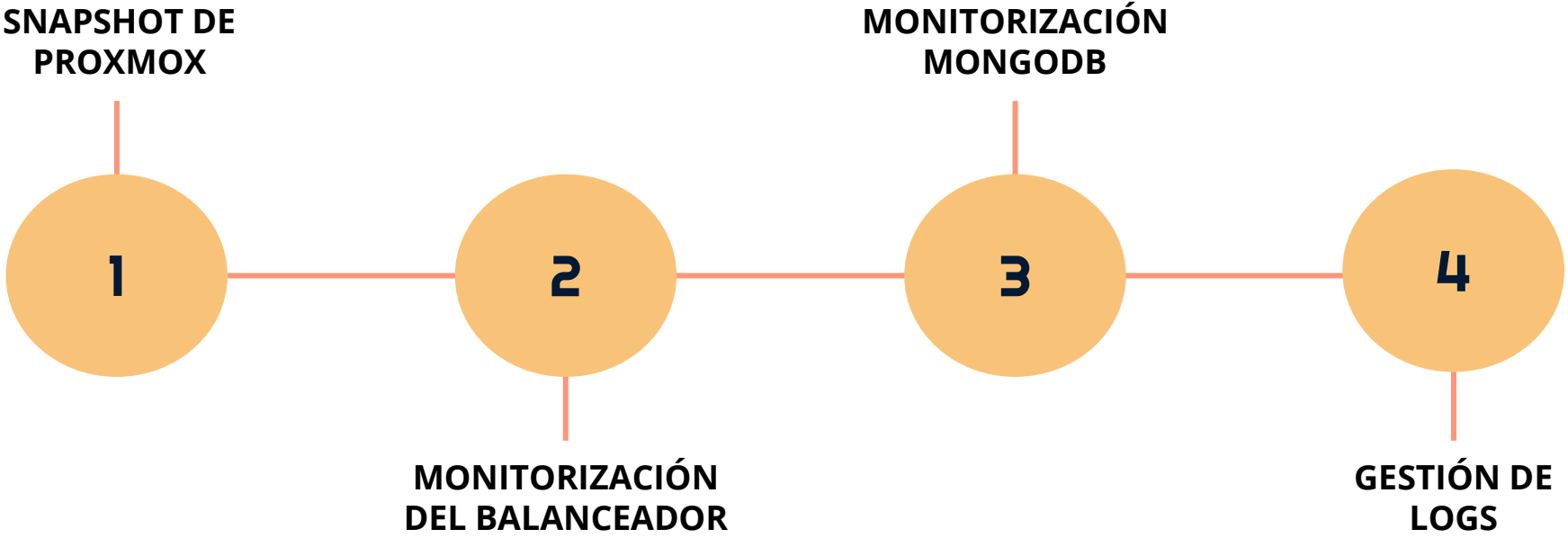
- **Manualmente:**

  Hacer copias de la plantilla, modificar el balanceador y borrar servidores antiguos.

- **Automáticamente:**

  Usando librerías de *Proxmox.*

MANTENIMIENTO

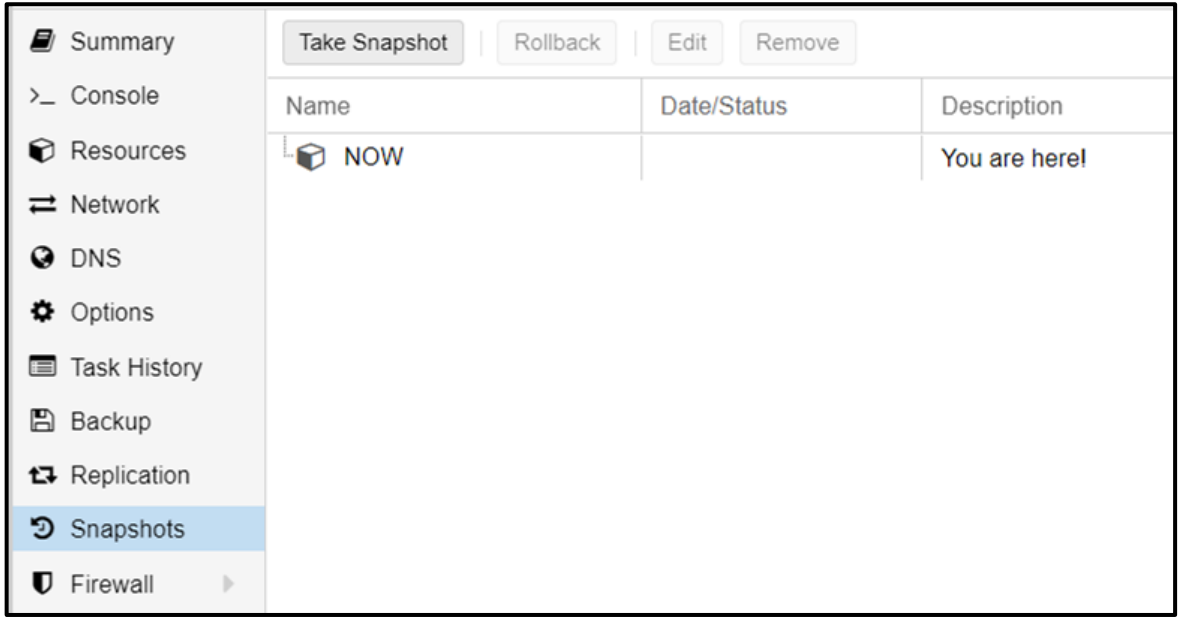


MANTENIMIENTO

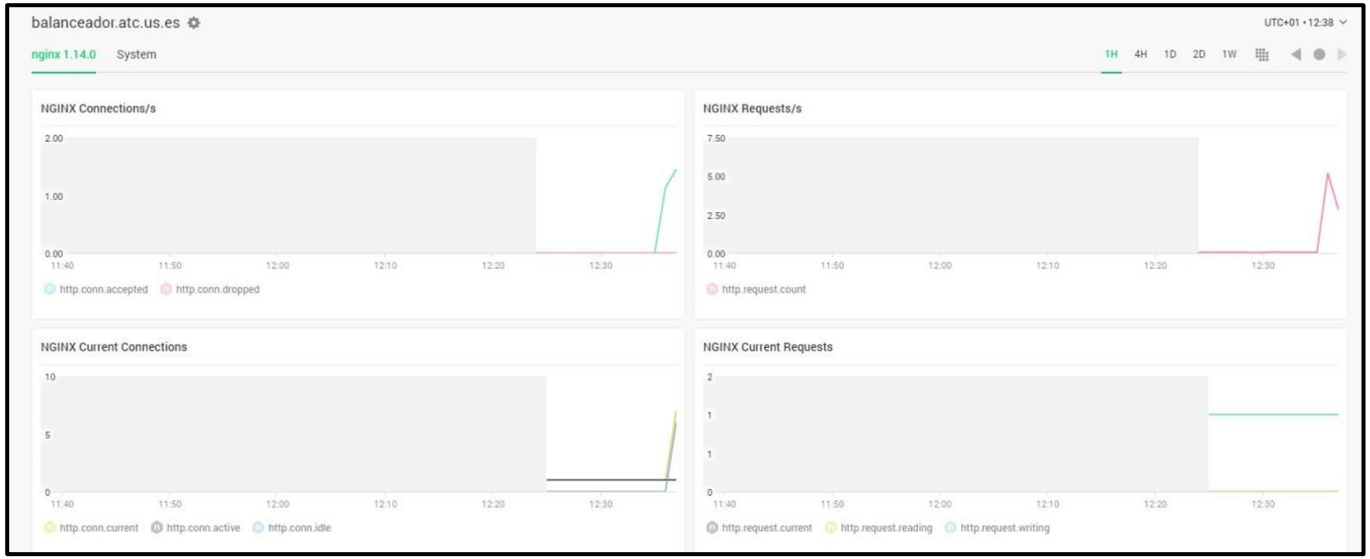
SNAPSHOT DE PROXMOX

1

PROXMOX



MANTENIMIENTO



2

MONITORIZACIÓN DEL BALANCEADOR

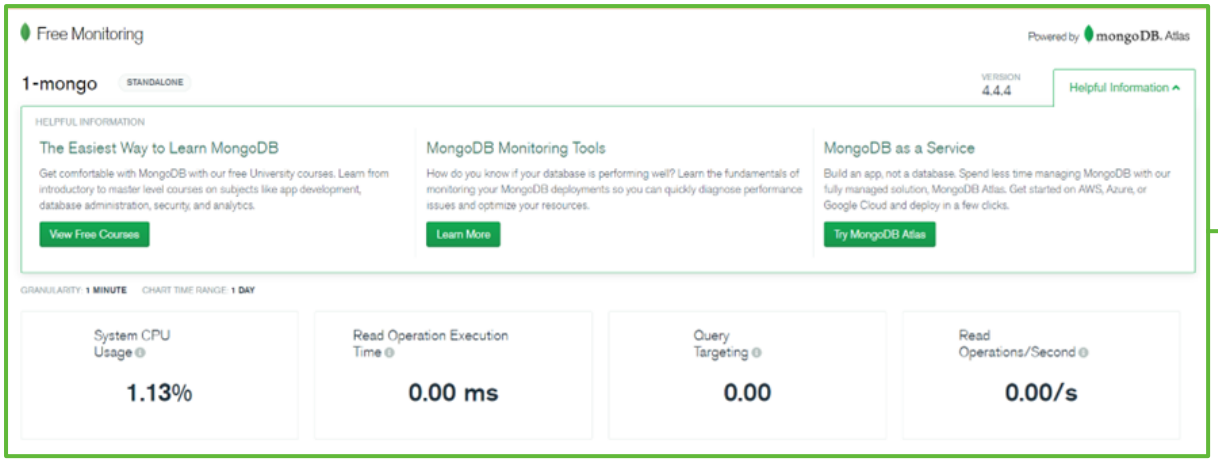
MANTENIMIENTO

MONITORIZACIÓN MONGODB

3

mongoDB

```
> db.enableFreeMonitoring()
{
        "state" : "enabled",
        "message" : "To see your monitoring data, navigate to the unique URL below. Anyone you share the URL with will also be able to view this page. You can disable moni
toring at any time by running db.disableFreeMonitoring().",
        "url" : "https://cloud.mongodb.com/freemonitoring/cluster/V35F5JIP3MOZFPMFNH25ND6VUURI65BH",
        "userReminder" : "",
        "ok" : 1
}
```

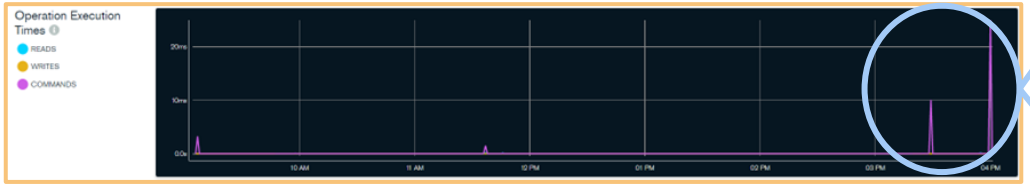


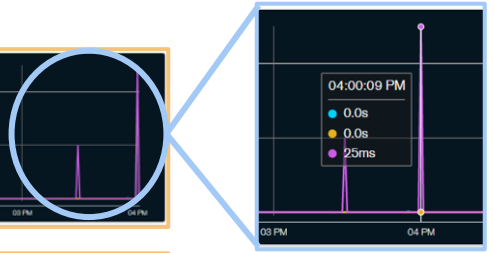
MANTENIMIENTO

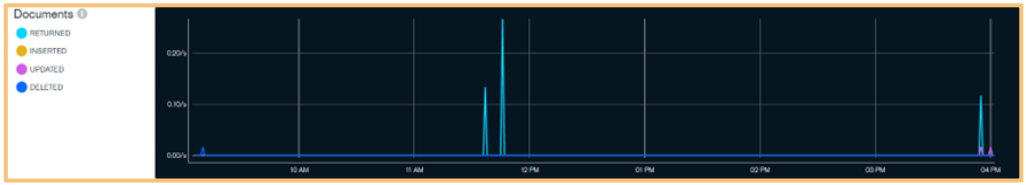
MONITORIZACIÓN MONGODB

3

mongoDB





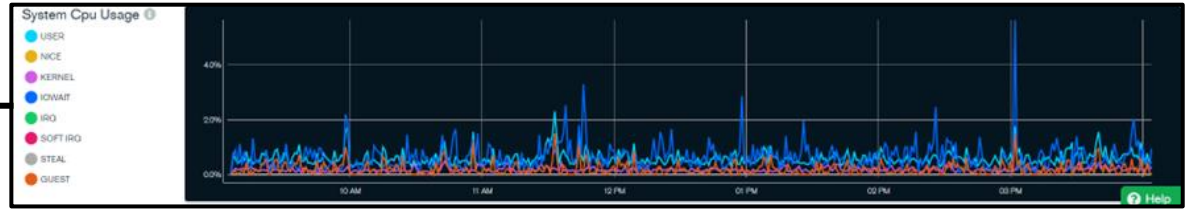


MANTENIMIENTO

MONITORIZACIÓN MONGODB


```
> db.disableFreeMonitoring()
```

Fin de la monitorización



Detalles de leyenda

MANTENIMIENTO

```
127.0.0.1 - - [19/Dec/2022:06:02:18 +0000] "GET /nginx_status HTTP/1.1" 200 118 "-" "nginx-amplify-agent/1.8.1-1"
127.0.0.1 - - [19/Dec/2022:06:02:38 +0000] "GET /nginx_status HTTP/1.1" 200 118 "-" "nginx-amplify-agent/1.8.1-1"
127.0.0.1 - - [19/Dec/2022:06:02:58 +0000] "GET /nginx_status HTTP/1.1" 200 118 "-" "nginx-amplify-agent/1.8.1-1"
127.0.0.1 - - [19/Dec/2022:06:03:18 +0000] "GET /nginx_status HTTP/1.1" 200 118 "-" "nginx-amplify-agent/1.8.1-1"
```

Log de acceso de *NGINX*

4

GESTIÓN DE LOGS

LIMITACIONES

PERMISOS Y ADMINISTRACIÓN

CONFIGURACIÓN

EJECUCIÓN

CONCLUSIONES Y TRABAJO FUTURO

ESCALABILIDAD

Construir un *cluster* de *Kubernetes* usando *k3s* en *Promox* gracias a *Ansible* y *Terraform*

DESPLIEGUE EN LA NUBE

Trabajo pensado para despliegue en la nube a falta de IP pública (problemas administrativos)

MUCHAS GRACIAS POR VUESTRA ATENCIÓN

VÍDEO DEMOSTRACIÓN